BEAT PRODUCER

User Manual

CONTENTS

Chapter 1 - Foreword *- Page 1*

Chapter 2 - Compatibility *- Page 1*

Chapter 3 - System Requirements *- Page 1*

Chapter 4 - Introduction - What does Beat Producer do? *- Page 2*

Chapter 5 - Copy Protection *- Page 2*

Chapter 6 - Using Beat Producer for the first time *- Page 3*

Chapter 7 - Tachyon Engine Introduction *- Page 4*

Chapter 8 - Front Panel Basics *- Page 5*

Chapter 9 - User Interface Organisation *- Page 7*

- ***9.1 - Global Controls*** *- Page 8*
- ***9.2 - The Browser Display*** *- Page 10*
- ***9.3 - The Rack Controls*** *- Page 14*
- ***9.4 - Rack Synthesizer Controls*** *- Page 17*
- ***9.5 - Waveform Page*** *- Page 22*
- ***9.6 - Step Sequencer Page*** *- Page 25*
- ***9.7 - FX Page*** *- Page 29*
- ***9.8 - The Options Screen*** *- Page 31*

Chapter 10 - Appendix 1 - FX Algorithms and Adjustable Parameters *- Page 35*

Chapter 11 - Appendix 2 - Signal Routing Diagrams *- Page 43*

Chapter 12 - Copyright and Credits *- Page 47*

1 Foreword

Thank you for purchasing this Beat Producer virtual instrument plug-in. To get the best from your software purchase, we recommend that you read this manual carefully and keep a copy in a safe place for future reference.

Should you experience problems operating this product and can't find the answers in this manual, our technical support representative can be contacted at support@amg-software.com.

Don't forget, when contacting technical support to describe the problem in as much detail as possible, and provide details of your system configuration (operating system, host program, CPU, RAM, etc.).

The AMG virtual instrument team

2 Compatibility

The Beat Producer virtual instrument has been tested with a wide variety of Audio Unit and VST2-compatible host programs. However, host programs vary in their specifications and some may not implement features in the AU or VST2 specifications that Beat Producer relies upon. You should carefully check a demo version with your own system if you are worried about compatibility issues.

3 System Requirements

- **Windows, 1ghz+ processor, 1gb+ RAM, sound card**
- **MacOS OS-X 10.4 or better, 800 MHz G4 or any Intel processor, 1gb+ RAM**
- **VST2.3, VST2.4 or Audio Unit plug-in compatible host software**

You can find a list of Audio Unit or VST2 plug-in compatible host software at www.kvraudio.com, the internet's best resource for information about audio plug-ins and hosts.

4 Introduction – What does Beat Producer do?

The Beat Producer virtual instrument plug-in is a powerful way to play and manipulate sampled "loops" in your music. Sampled loops are one of the core ingredients in modern music and sound design, and AMG have dedicated themselves over the last 23 years to bring musicians the finest sound library on the planet.

Using sampled loops on a computer hasn't always been easy however. Once a sample is recorded, the duration and pitch are fixed. If you have ever tried to speed a sampled loop up or slow it down you'll know already that it is impossible to do so easily without affecting the pitch or the sound quality. This is where the technique of loop "slicing" comes into its own. Loop slicing is the process of separating a sample into its constituent beats in software such as Propellerhead Software AB's popular "Recycle" program, or Sony's ACID. Once a sampled loop has been correctly sliced it can be used much more freely with regards to pitch and tempo, and musicians are free to mix and match sampled loops from various sources seamlessly within the same composition.

Until recently, musicians wanting to take advantage of sliced loop sample files such as REX or ACIDized music loops often had to rely on clumsy work-arounds to access their sample libraries from within their host sequencer. Thankfully, Beat Producer gives you direct access to your loop library from within your host sequencer, with convenient plug-in integration. You can load a loop, jam with it live from your MIDI keyboard or mangle the beat with powerful synthesis features such as envelopes, LFOs and multi-mode resonant filters. Read on to find out how to enter the new era of sampled loop manipulation!

5 Copy Protection

The files in the Beat Producer library are protected from unauthorised use by an advanced encryption scheme. In order to access the encrypted content, customers must register their Beat Producer purchase at the AMG website. In order to register, three pieces of information are required:

- **Customer Name/Address**
- **Serial Number**
- **Machine ID**

The serial number of your Beat Producer virtual instrument is unique for each copy sold and will be shown on a sticker in the product packaging. The Machine ID is a special 32-character code displayed on the product's Option page, generated using information about your specific computer. The machine ID does not access or use any information that might be able to identify you as a person – instead, a number of internal hardware metrics are scanned and combined to calculate your Machine ID.

Once AMG receive your registration, you will receive a small license file by email that you must save onto your system in the Beat Producer library folder. Once installed, the license file will enable you to access the encrypted content, but only on the machine authorised to run the plug-in. If you need to install the library on multiple machines, please contact AMG customer service for more information.

Unencrypted demo content from a variety of AMG loop libraries is also provided so you can have fun with your new purchase whilst waiting for your license file. Remember, you do need to provide a genuine, working email address to receive your license file.

Section Summary:

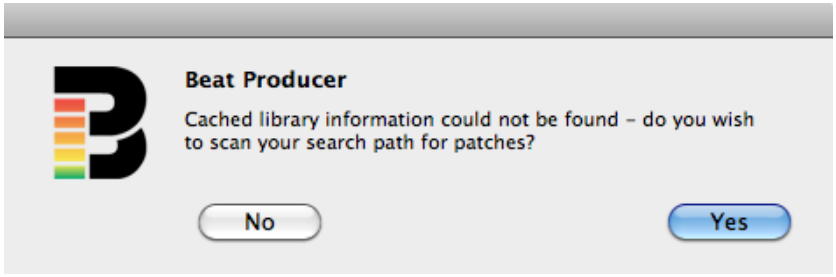
- ❑ **AMG use special encryption to protect their Beat Producer sound libraries from unauthorised use**
- ❑ **You must obtain and install a license file before you can use the encrypted loops**
- ❑ **Demo loops are installed for you to use while you are waiting to receive your license file**

6 Using Beat Producer for the first time

Beat Producer features a powerful, fast file browser that will search for compatible files on your hard disk and present them as a convenient menu so you can quickly load files into the software.

When Beat Producer is correctly installed in your host sequencer, it will be selectable from within your host program's VST instrument or Audio Unit menus.

When you select Beat Producer for the first time in your host, the following dialog box will be displayed:



Clicking the "Yes" button will start the scanning process. Beat Producer will search your hard drive, starting from its default location. The default location depends on which operating system you are running:

Windows XP	**"My Documents/Beat Producer" is the default location.**
Windows Vista	**"Documents/Beat Producer" is the default location.**
Windows 7	**"My Documents/Beat Producer" is the default location.**
Mac OSX	**"Documents/Beat Producer" is the default location.**

The scanning process is recursive (i.e. it will search in any nested subfolders it finds in the location) and it looks for any compatible files. If the folder does not exist, the scan process will return immediately.

You can change the location(s) that Beat Producer searches for files in the Options Screen. This is covered in detail in a later section of this user manual.

If you do not want Beat Producer to scan your hard drive, click the "No" button, Beat Producer will not scan your disk at this time, but it will ask you next time you open the software.

When the scan is complete, the user interface will appear and any compatible files that have been indexed will be added to the Browser and the Effects Screen's Browser Menu.

A small cache file (extension .OCH) will be created when the scanning process is complete. The cache file is stored with your application preferences.

7 Tachyon Engine Introduction

Beat Producer is based on **Muon Software Ltd's proprietary 64-bit Tachyon Engine**. Throughout this user manual you will see the following terms used to refer to the different components of the engine:

Rack One of the 8 individual synthesiser "slots" that you can load sound files into. You can load a different sound file into each Rack for multi-timbral playing. Each Rack also has its own built-in MIDI sequencer and Step Sequencer that can be used to automatically play loops and other phrases. Racks are triggered from their designated MIDI channel, and send the sound they generate to a designated Output.

Voice Each Rack can play up to 64 simultaneous notes dependent on your computer's processing power. Faster computers will be able to play more voices across more Racks.

FX Unit A component of the engine that you can use to apply DSP effects to Racks. There are four FX Units available in each instance of the engine. Processed sound from the FX units is also sent to a specific Output.

Output One of four stereo audio busses where sound leaves the engine to enter the host sequencer's mixer.

Patch A sound file that can be loaded into a Rack, containing samples, MIDI clips, Step Sequences and synthesiser parameter settings. The file extension for a Patch stored on disk is .OPF

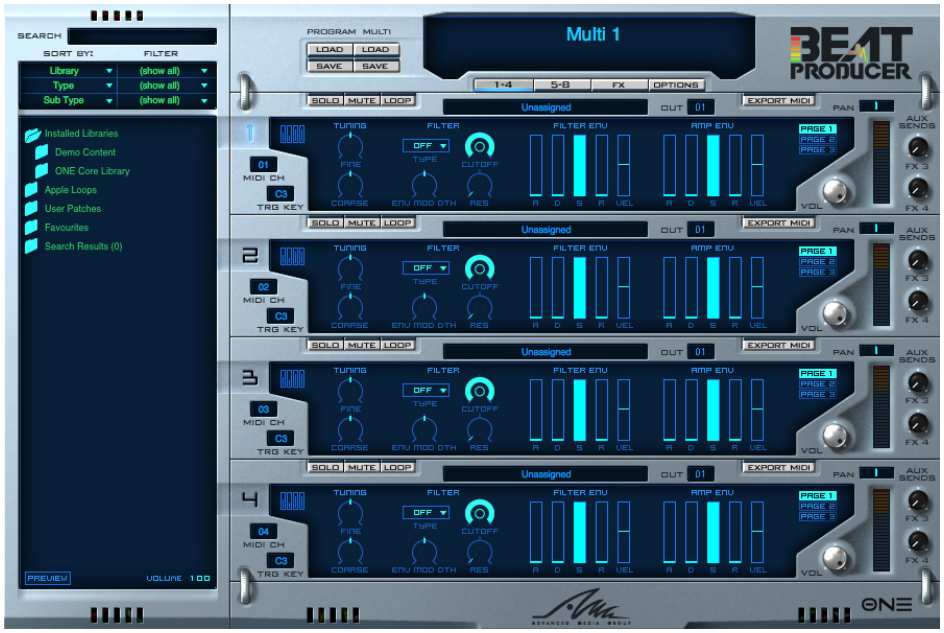
FX Patch A complete save of the settings for one of the FX units. The file extension for an FX Patch saved on disk is .OFF

Multi Patch A complete save of the Patch assignments on each of the 8 Racks, routings, mix and effects settings for each of the 8 Racks and each of the 4 FX Units plus the samples and MIDI clips and Step Sequences used by the assigned Racks. The file extension for a Multi Patch stored on disk is .OPM

Section Summary

- ❑ **Patches are sound files containing sampled instruments, loop data and parameters**
- ❑ **You can load up to 8 Patches into slots called Racks for multi-timbral playing**
- ❑ **You can mix/process the Racks with FX**
- ❑ **The settings of all the Racks, assigned Patches and FX is called a Multi Patch**

8 Front Panel Basics



When Beat Producer is correctly installed in your host sequencer, it will be selectable from within your host program's VST instrument or Audio Unit menus. When Beat Producer is selected (in accordance to your host program's instructions), the user interface above will be displayed.

Although the user interface looks complex at first sight, it has been designed to make all the main controls you need closest to hand. "Deeper" editing can also be performed by opening additional screens within the interface.

There are six basic types of controls used throughout Beat Producer's user interface:

Text boxes

Text boxes display a line of text such as a patch, file or sample name. In most cases you can edit the text box value by double-clicking on it, or display a contextual menu of related options by right-clicking (Command-click on Mac) on it.

Rotary controls (knobs)

To change the value of a rotary control, click on it, hold the mouse button down and drag vertically or horizontally. Whenever you click on a control that does not have an associated numeric display, a small pop-up box will display the exact value you are changing. To set a control to its default value, hold down the CTRL key on your keyboard when clicking, and to increase the mouse resolution hold down SHIFT when dragging.

Sliders

To change the value of a slider control, click and drag vertically or horizontally. Apart from their visual appearance, these controls are identical in function to the Rotary Controls described previously.

Buttons

Buttons in Beat Producer's user interface have two states – "on" and "off". To toggle a button's state simply click on it. Some buttons do not latch (such as the Load and Save buttons) - these activate special functions when clicked.

Drop-down menus

Controls where there is a set menu of choices have been implemented with drop-down menus. Click on the triangle icon next to the text to display the menu of choices, and then click in the menu to select your desired option.

Number Spinners

Where the number of choices would make a drop-down menu unwieldy, a number spinner control has been used (for example, MIDI channel, trigger key and polyphony). To increase a number spinner value, click and drag vertically upwards. To decrease the parameter, click and drag your mouse downwards. You can also CTRL-click to change the control back to its default value and SHIFT-click to increase the mouse range while dragging just like the knob and slider type controls.

Beat Producer can also be controlled entirely from an external MIDI controller, providing that controller is capable of sending MIDI Continuous Controller (CC) messages. A special MIDI "learn" mode is provided to quickly build up your own MIDI CC mappings.

Simply right-click (Command-click on Mac) on any control to display a menu of the current MIDI CC settings. Choose "link to next CC" from the menu to put a control into "learn" mode. Once a control is in "learn" mode, it will automatically link itself to the next CC message that it receives.

Note that MIDI controller functionality may differ from host program to host program. Some sequencers, for example, intercept and do not pass MIDI controller messages in their entirety to loaded plug-ins (FL Studio, Logic Audio for example). You should refer to your sequencer's user manual for more information if you are not sure.

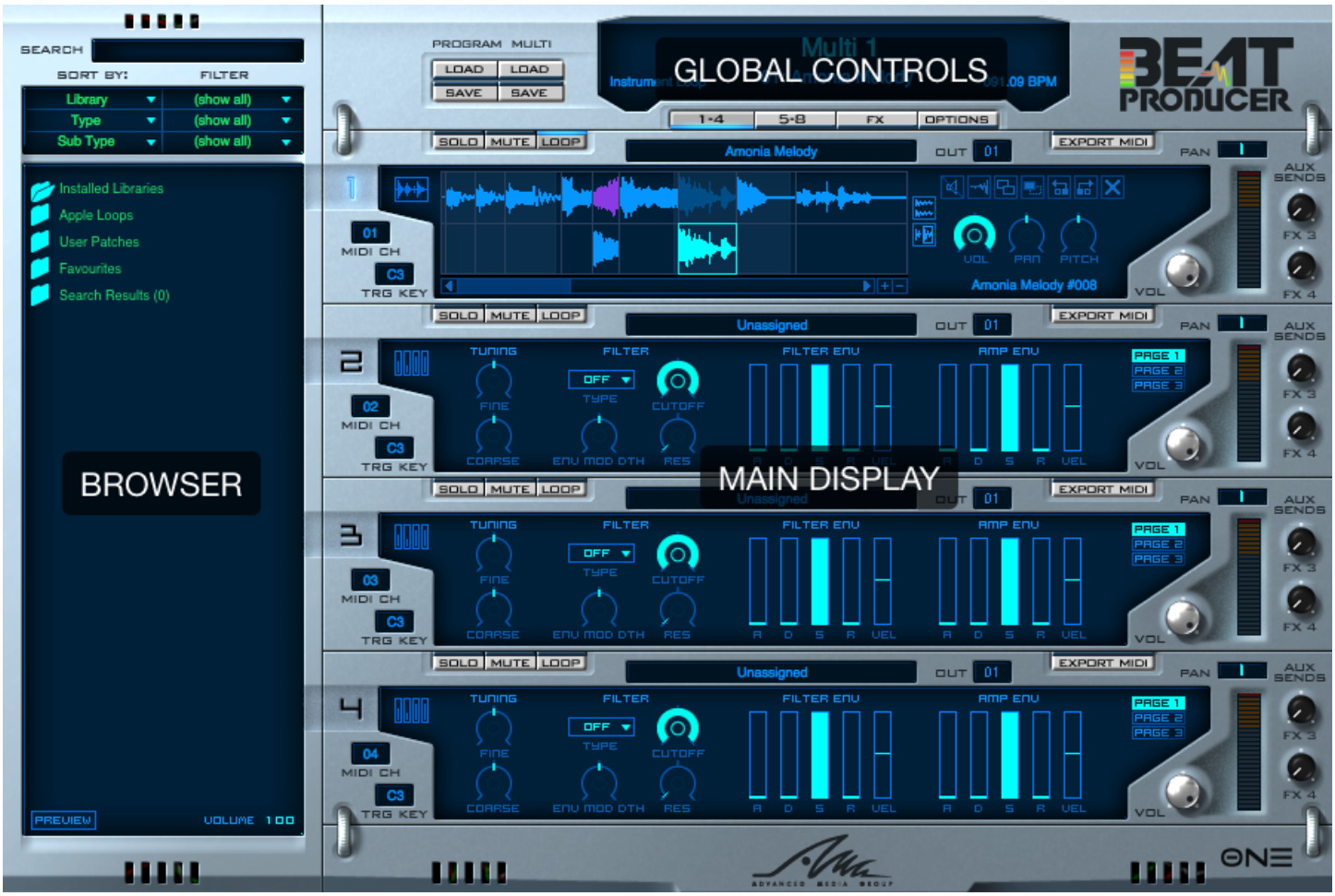
Section Summary:

- ❑ **Most controls are operated by dragging horizontally or vertically with the mouse**
- ❑ **CTRL-clicking most controls will reset them to their default value**
- ❑ **Holding down shift while dragging a control will give you greater precision**
- ❑ **Many of Beat Producer's controls can be automated over MIDI by right-clicking on them**

9 User Interface Organisation

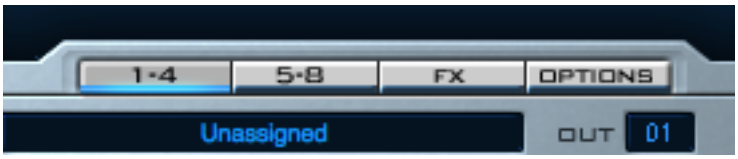
Beat Producer's interface is divided up into three main areas:

To the left of the screen is the Browser Display, which allows you to search through the library supplied with Beat Producer and your own files, to choose patches to load.



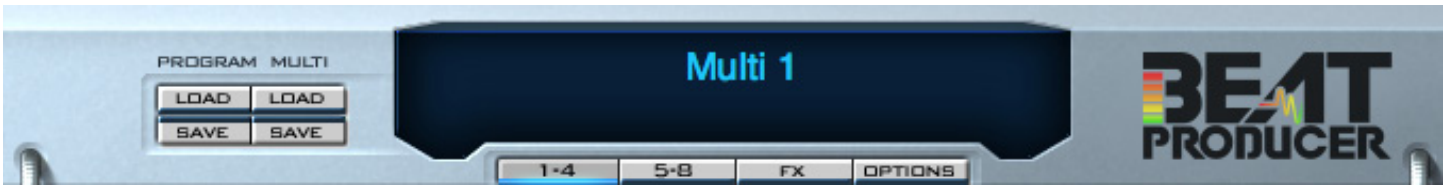
To the right of the browser, taking up the majority of space on the interface, is the Main Display. The Main Display has four pages:

- **Racks 1-4**
- **Racks 5-8**
- **FX**
- **Options**



Immediately above the Main Display is a strip of buttons that can be clicked to select the current display page. Above the button strip are the Global Controls, which are detailed in the next section.

9.1 Global Controls



We will refer to the controls on the grey metallic part of Beat Producer's user interface at the top as the "Global Controls". This is because they are always visible regardless of the Main Display page selected. These controls are as follows (from left to right):

9.1.1 Program Load

Loads a sampled loop into the currently highlighted Rack. When this button is clicked a standard file dialog will be displayed. Windows users will have to select (using the drop-down selector at the bottom of the dialog window) which sort of files they are browsing for. Mac OSX users will not have to do this – invalid files will appear greyed-out in the browser dialog.

In Beat Producer you can load loop files with the extension OPF provided they have been specially prepared for use in the software. OPF files created for the original ONE/Solo plugin (Dance Edition and D'n'B edition) cannot be loaded in Beat Producer. OPF file contain the complete set of data associated with a Beat Producer rack, including all samples, sequences, parameters and controller assignments.

You can also load sampled loops that have been specially "sliced" and saved in an appropriate format. Sampled loops sliced in Propellerhead Software's Recycle, for example, will have the file extensions REX, RX2 or RXY depending on the version of Recycle used. These can all be used in Beat Producer provided the loop has less than 128 slices.

Sampled loops saved in Sony's ACID software will have the file extension WAV. This makes it difficult to distinguish them from ordinary WAV files which just contain plain audio in the file dialog without any slicing information. Beat Producer is able to tell automatically if a WAV file can be loaded as a sliced ACID file (and thus be timestretched in real time) or not. If you select a WAV file to be loaded as a patch, Beat Producer will act accordingly depending on the data in the file. Similarly, Apple Loops created with the Apple Loop Utility have the file extension AIF or AIFF. This also makes it difficult to distinguish them from ordinary AIFF files which just contain plain audio. Beat Producer is able to tell automatically if an AIFF file can be loaded as a sliced Apple Loop and be timestretched or not.

When importing a sample that is not in OPF format, you will be asked to resave it in OPF format right away. This option can be disabled in the Options screen (see Options screen section) but it is not advisable as Beat Producer has advanced file handling features that work best with the OPF format. There is a section discussing these file handling features, and the Options screen, later in this manual.

9.1.2 Multi Load

Beat Producer has eight separate Racks and four separate FX Units. There are separate parameters for each of the Rack's MIDI channel, output, volume, pan, FX send level etc. A file that contains the entire state of Beat Producer (including all of these parameters plus all the samples and FX patches currently loaded) is called a Multi. Beat Producer Multi files have the extension OPM.

When this button is clicked a standard file dialog will be displayed. Navigate to the desired OPM file and load it using the OK button. All information presently in memory will be erased by this action.

9.1.3 Program Save

Saves all the settings of the currently highlighted Rack to disk as an OPF file. When this button is clicked a standard file dialog will be displayed. Use the dialog to navigate to the folder you would like to save your OPF file in, provide a filename and click "OK". Files saved in this folder can be browsed using the Browser Display. More information about file handling is given later in this manual.

9.1.4 Multi Save

Saves the entire state of the plug-in including all eight racks and all four FX units to a single OPM file. When this button is clicked a standard file dialog will be displayed. Use the dialog to navigate to the folder you would like to save your OPM file in, provide a filename and click "OK". Files saved in this folder can be browsed using the Browser Display. More information about file handling is given later in this manual.

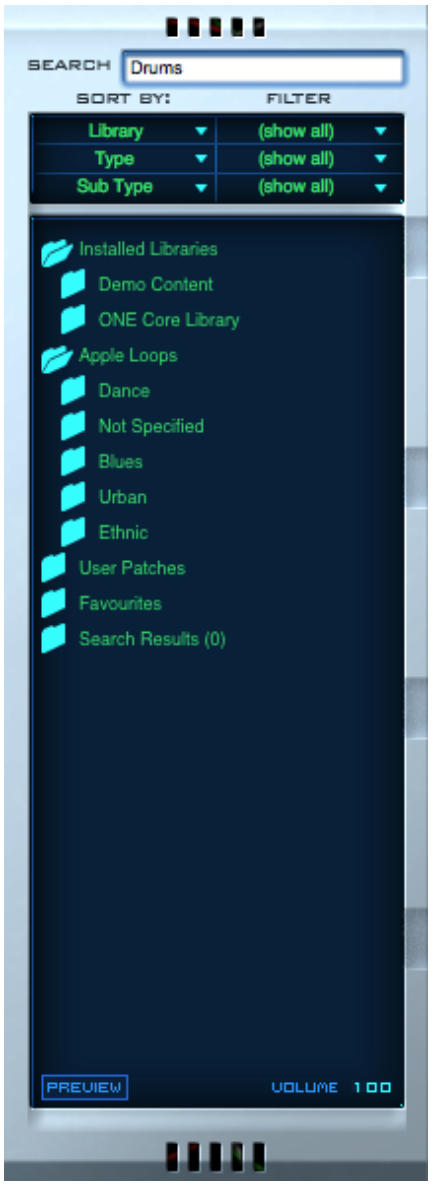
9.1.5 Multi Display

At the very top of the global area, the name of the currently loaded Multi is displayed on the top line, in large characters. Double-click on the text to change the Multi name.

The second line of this display gives information about the sampled loop loaded on the currently highlighted Rack. If nothing is loaded on the currently highlighted Rack, this line of the display will be blank.

Section Summary:
❑ Beat Producer has eight Racks and four FX units
❑ The entire state of Beat Producer can be saved into and loaded from Multi files, which have the extension OPM
❑ The entire state of an individual rack unit can be saved into and loaded from Patch files, which have the extension OPF

9.2 The Browser Display



The Browser Display is a tool to help you organise your sound library easily. The Core Library is supplied with the Pro Edition of Beat Producer and includes over 3500 sampled loops, other versions are available.

The Browser Display is split into three sections: Search, Sort By/Filter and the Browser itself.

9.2.1 Search

Search allows you to find files in your Installed Libraries, Apple Loop libraries, your User Patches folder(s) and your Favourites. Simply type in the name or partial name of the file you wish to find and hit Return. The search results will be displayed in the Search Results folder in the Browser.

9.2.2 Sort By/Filter

The Sort By and Filter By menus allow you to organise the contents of your installed libraries as you wish. Clicking on the menu arrows will bring up a list of categories which can be used to sort the Installed Libraries folder, including:

Library, Genre, Producer	These sort the items in the installed libraries by library name, the genre of the item and the producer of the item
Format, Type, Sub-Type	These sort the items by format (e.g. Loop, One Shot, FX Patch, etc.), type (e.g. Drum Loops, Bass Hits, Full Mixes, etc.), and sub-type. The types and sub-types will vary according to which libraries you have installed.
BPM	This allows you to sort items in the installed libraries by BPM range (100 to 109, 110 to 119, etc.) Multis and One Shot Samples will most likely not have a BPM value.
None	This allows you to browse items without sorting them.

These sort criteria affect the folders visible under the Installed Libraries folder in the Browser. If for example, you choose "Producer" in the first sort box, then if you expand the Installed Libraries folder, there will be a folder for each producer in Installed Libraries. If you choose BPM in the first sort field, there will be a folder within the Installed Libraries folder for each BPM range in your installed libraries.

There are 3 sort fields, so you may select multiple sort criteria. If you select (for example) Producer in the first sort field, Type in the second field and BPM in the third field, you will get the following structure in the Browser:

Using the filter boxes it is also possible to restrict the browser to show only parts of the library. For each sort field, there is also a filter menu. If you click on the filter field arrow it will bring up a menu with "(show all)" and all the possible values you can filter by.

For example if you select Producer in the first sort field, clicking on the first filter field arrow will display a menu. If you choose "(show all)" the Browser will display Programs (or Multis, etc.) by all Producers. If you select a single producer from the filter list, the Browser will only display items created by that producer.

You can apply a filter for each sort option chosen.

9.2.3 Browser

The Browser shows all files that can be loaded by Beat Producer. This includes Beat Producer's Multis/Programs/Oneshot samples and the other types of files that can be loaded by Beat Producer (WAV, AIFF, REX, etc.) Files and folders can be easily identified by the icon to the left of the filename. Horizontal and vertical scrollbars appear when needed to navigate the Browser.

You will see the following icons in the browser:

Clicking on a folder will open it to display the folder contents, or close a folder which is already open.

There are five top-level folders which organise different types of related files.

Installed Libraries - This folder shows all Multis/Programs/FX patches/Hits for all installed libraries. If you have added or removed libraries from the Installed Libraries folder on disk, you might need to rescan the folder by selecting the "Quick rescan all browser data" context menu option.

Apple Loops - This folder shows all Apple Loops detected on your search paths, organised first by Genre, then Type and then Sub-Type. This sort order is fixed and can't be changed.

User Patches - This folder shows all other compatible files found on your search paths. If you have saved new files in this folder or deleted any files you will need to rescan this folder by selecting the "Quick rescan all browser data" context menu option.

Favourites - This folder shows all files you have added to your favourites folder. You can add files to this folder from elsewhere in the Browser by right-clicking the file and selecting the "Add to favourites" option.

Right-clicking any file in this folder brings up a menu which allows the file to be removed from the favourites folder.

Search Results - This folder contains any item found by using the search function (described previously). The number in brackets shows the number of items found by the search. You can clear your search results by selecting the "Clear search results" context menu option.

This icon identifies a Beat Producer Multi file. Double-clicking on the file will load the Multi file as described in the Multi Load section. All information presently in memory will be erased by this action.

Multis can be added to the Favourites folder by right-clicking and selecting "Add to favourites".

This icon identifies a Beat Producer Program file. Double-clicking on this file will load the Program into the currently selected rack, overwriting the contents of the rack.

Clicking on the Program and holding the mouse button down for a short while will preview it at the current tempo. This can also be achieved by selecting the Program and clicking on the "Preview" button at the bottom of the Browser.

Programs can be added to the Favourites folder by right-clicking and selecting "Add to favourites".

To use the individual slices of the Patch in the Waveform Screen or Step Sequencer (described later) you can right-click and select the "Export Samples" option. This will save each slice in the Patch as a separate OPS file in a directory chosen by the user. If the original Patch was copy protected, these OPS files will be copy protected too.

This icon identifies a Beat Producer One Shot (OPS) file. Normally these files contain a single sound, such as a drum hit, bass note or sound effect and are loaded into a single sequencer slot or waveform slice, but they can also be loaded directly into a rack and played back at different pitches across the keyboard.

To load a one shot sample into a waveform slice, select the Waveform Display page in a rack, select one or more slices into which to load the file, then double-click the one shot file in the browser. The Waveform Display is described in more detail later in this manual.

To load a one shot sample into the step sequencer, select the Step Sequence page in a rack, select one or more slots into which to load the file, then double-click the One Shot File in the browser. The Step Sequencer is described in more detail later in this manual.

To load a one shot sample to be played back across the keyboard on a rack, select the Synth page for the rack, and double-click the One Shot File in the Browser. This will overwrite any information in the rack and replace it with the One Shot File playable across the whole keyboard at different pitches. The sample will not be timestretched to follow the sequencer tempo, but this provides simple playback of any sample.

Clicking on the one shot file and holding the mouse button down for a short while will preview it. This can also be achieved by selecting the one shot file and clicking on the "Preview" button at the bottom of the Browser.

One shot samples can be added to the Favourites folder by right-clicking and selecting "Add to favourites".

These icons represent Apple Loops, ACID WAV files and Propellerheads RCY/REX/RX2 files. Double-clicking on such an item will load it into the currently selected rack, similar to the Load Program function described previously. Any information in the rack will be overwritten.

Note: if you have selected "Force Resave Of Imported File Types" on the Options screen, you will be prompted to resave the file as a Beat Producer Program file (OPF). For further information, see the section on file handling.

Clicking on an Apple Loop/ACID/REX file and holding the mouse button down will preview it at the current tempo. This can also be achieved by selecting the file and clicking on the "Preview" button at the bottom of the Browser.

Apple Loop/ACID/REX files can be added to the Favourites folder by right-clicking and selecting "Add to favourites".

These icons represent simple sample files - WAV files (with no ACID information) and AIFF files. Similar to one shot sample files, these files would normally be loaded into individual step sequencer slots or waveform slices, but it is possible to load them directly into a rack to play them across the keyboard.

To load a sample into a waveform slice, select the Waveform Display page in a rack, select one or more slices into which to load the file, then double-click the sample in the browser. The Waveform Display is described in more detail later in this manual.

To load a sample into the step sequencer, select the Step Sequence page in a rack, select one or more slots into which to load the file, then double-click the sample in the browser. The Step Sequencer is described in more detail later in this manual.

Note: if you have selected "Force Resave Of Imported File Types" on the Options screen, you will be prompted to resave the file as a Beat Producer one shot sample file (OPS). For further information, see the section on file handling.

To load a sample to be played back across the keyboard on a rack, select the Synth page for the rack, and double-click the sample in the Browser. This will overwrite any information in the rack and replace it with the sample playable across the whole keyboard at different pitches. The sample will not be timestretched to follow the sequencer tempo, but this provides simple one shot playback of samples.

Note: if you have selected "Force Resave Of Imported File Types" on the Options screen, you will be prompted to resave the file as a Beat Producer Program file (OPF). For further information, see the section on file handling.

Clicking on the One Shot File and holding the mouse button down for a short while will preview it. This can also be achieved by selecting the One Shot File and clicking on the "Preview" button at the bottom of the Browser.

One Shot Filess can be added to the Favourites folder by right-clicking and selecting "Add to favourites".

9.2.4 Preview button

It is possible to preview Programs, One Shot Samples, ACID files, RCY/REX/RX2 files, WAV files and AIFF files by selecting them in the Browser, and clicking the "Preview" button and holding it down. Releasing the button will stop the preview.

While the item is previewing "Previewing…" will be shown in the browser. If the item cannot be previewed "No preview available…" will be shown instead.

9.2.5 Volume number spinner

Dragging the volume spinner up and down sets the preview volume between 0 (silent) and 100 (full volume).

Section summary

- ❑ **The Browser shows the files available from the search paths.**
- ❑ **Search allows files to be found by name.**
- ❑ **The Sort By/Filter fields allow the Installed Libraries folder to be sorted and filtered by different categories.**
- ❑ **Double-clicking a file in the Browser loads it into the currently selected rack, slice or slot.**
- ❑ **Clicking and holding down the mouse previews many items in the Browser.**
- ❑ **Right-clicking displays menu options for most items.**

9.3 The Rack Controls

Each of Beat Producer's racks plays back sounds on a particular MIDI channel. A rack can play back the following:

A loop patch, either from a Beat Producer library or an imported Apple/ACID/REX loop. Individual slices in a loop can be replaced or overlayed with different samples and processed in a number of ways.

A 4/4 "step" sequenced pattern comprising of up to 32 sound layers - each sound can either be loaded in from the Beat Producer library, an external file or a slice from a loop already loaded into Beat Producer. A step sequenced pattern can be used in the same rack as an existing loop or on its own.

A single sample patch – it is possible to take one sample and map it across the keyboard to be played back at different pitches. It is not possible to combine single sample patches with step sequenced patterns.

The following controls are visible for each rack, irrespective of what page is selected:

9.3.1 Rack Selection Indicator

The currently selected rack is indicated by a glowing rack number. Any load/save operations will refer to the currently selected rack. A rack will usually be automatically selected when you move a control on that rack, but you can manually select a rack by clicking on this indicator.

9.3.2 MIDI Ch

Each rack is assigned a MIDI channel and will only respond to MIDI information on that particular channel. This number spinner allows you to select the MIDI channel for the current rack. You can assign multiple racks to the same MIDI channel if you wish to overlay different loops, or you can use different MIDI channels to control each rack separately. By default, each rack is assigned to a different MIDI channel.

9.3.3 Trig Key

This spinner determines which MIDI note will trigger the patch on this rack when in Loop mode. You can change the trigger note by dragging this value up and down. There are also three separate modes of operation which can be selected by right-clicking the spinner and choosing from the menu:

One Note Only the Trigger Key shown will trigger the Patch.

One Octave The Patch will be triggered by keys up to one octave either side of the Trigger Key. Playing a key other than the Trigger Note will cause the Patch to change pitch away from its recorded pitch (without affecting the tempo).

Two Octaves As above, but the Trigger Range is two octaves either side of the Trigger Key

Trigger Keys and Trigger ranges can overlap with other racks. The racks will play simultaneously if they are assigned to an overlapping range and the same MIDI channel.

9.3.4 Solo/Mute

These controls allow you to solo or mute a rack. Selecting solo will automatically mute all racks which do not have solo activated.

9.3.5 Loop

With Loop mode switched on, the entire loop will be played back in sync with the current sequencer tempo whenever the trigger note (default C3) is received. With Loop mode switched off, the individual slices for the loop will be triggered using the notes C1, C#1, D1, etc.

9.3.6 Program Name

This displays the name of the program on the rack. Double-click the field to edit the name.
Right-clicking the program name field brings up a context menu with the following options:

Load patch	Same as clicking the Load button
Save patch	Same as clicking Save button
Delete patch from memory	Deletes the Patch (from memory, not from disk)
Import MIDI groove into patch	Displays a file dialog where you can select a Standard MIDI file (.SMF) to import into the Patch. When a Patch contains a MIDI groove it can be played automatically by holding down a key within its trigger range.
Replace MIDI groove in patch	Displays a file dialog where you can select a Standard MIDI file (.SMF) to overwrite the MIDI grove within the Patch.
Export MIDI groove from patch	Displays a file dialog where you can select a file on disk to save the MIDI groove imported into the selected part as a Standard MIDI file (.SMF).
Delete MIDI groove from patch	Removes any imported MIDI groove from the Patch.

Note: when looped content (such as REX files, ACIDized WAV files, Apple Loops etc.) are imported into Beat Producer, a MIDI groove is automatically created that will play the slices of the loop with the original timing. Beat Producer patches can also contain MIDI grooves.

9.3.7 Out

Clicking on the Out field will bring up a menu allowing you to send the output of the rack to one of Beat Producer's 4 outputs, or to one of Beat Producer's internal insert FX. More information on Beat Producer's output and FX routing can be found in the Beat Producer Routing Architecture section later in the manual

9.3.8 Export MIDI

Displays a file dialog where you can select a file on disk to save the MIDI groove imported into the selected part as a Standard MIDI file (.SMF). This file can then be imported into your sequencer for fine editing of your trigger points.

If you want to use your sequencer to play the slices in a rack, then you should use the Loop button to switch loop mode off for this rack. The notes in the MIDI file can then be used to trigger the individual notes from the sequencer of your choice, or you can rearrange the notes in your sequencer to change the timing or which sounds are triggered by a particular note.

9.3.9 Pan

Controls the amount of signal to be sent to the left and right channels of the designated stereo Output.

9.3.10 Vol

Controls the overall level of the Rack in the mix.

9.3.11 Meter

Displays a graphical representation of the signal level of the Rack.

9.3.12 Aux Sends FX3/4

Controls the amount of signal from the Rack to be sent to the FX Unit 3 or FX Unit 4 input busses. More information on Beat Producer's FX routing can be found in the "Beat Producer Routing Architecture" section of this manual.

9.3.13 Rack Synthesizer/Waveform/Step Sequencer Selector

Clicking this control allows you to cycle between the rack's main synthesizer controls, the Waveform Display and the Step Sequencer. Each of these will be described in the following section of this manual.

Section summary

❑ Each of Beat Producer's racks has independent control of solo/mute, pan and volume and each can be routed to Beat Producer's outputs or shared FX units

❑ Each rack can work in loop mode where a single note triggers tempo synchronised playback of a loop, or in non-loop mode where the slices are each triggered by different notes.

9.4 Rack Synthesizer Controls

Synth Page 1/2/3 Selector

The rack synthesizer controls are split across 3 pages. You can cycle through these pages using the page 1/2/3 selector to the right of the rack.

9.4.1 Controls on Rack Synthesizer page 1

The first virtual page of rack synthesizer controls contains just the controls most users will access most frequently.

Tuning Section

Controls in the Tuning section affect the playback pitch of the sampled loop, but do not affect the playback tempo.

■ **Fine** Sets the pitch (in cents) of the Patch being played. An offset of +100 cents will cause the Patch to play one semitone sharper than normal.

■ **Coarse** Sets the pitch (in semitones) of the Patch being played. An offset of +24 semitones will cause the Patch to be played two octaves higher than normal.

Filter Section

Beat Producer contains a powerful multi-mode resonant filter that you can use to creatively mangle your sampled loops.

■ **Filter Type** - There are 10 different kinds of filter available, accessible via the drop down menu

LP12 12db/Octave Lowpass filter – reduces the treble
HP12 12db/Octave Highpass filter – reduces the bass
BP12 12db/Octave Bandpass filter – reduces the bass and treble together
BR12 12db/Octave Band reject filter – creates a notch in the spectrum like a phaser
LP24 As LP12 but with a stronger effect
HP24 As HP12 but with a stronger effect
BP24 As BP12 but with a stronger effect
BR24 As BR24 but with a stronger effect
LP/BR A hybrid of Band Reject and Lowpass
PEAK A narrow peaking filter that emphasises only a small range of the spectrum

■ **Cutoff** - The action of the Cutoff control is to set the point in the audio spectrum at which the effect of the filter begins. For a lowpass filter this means the frequency after which the treble is reduced. In a highpass filter this would be the frequency at which the bass is back to normal (the opposite of a lowpass filter!). For bandpass and bandreject the cutoff is the centre of their area of effect.

■ **Resonance** - The Resonance parameter, in the LP12/24, HP12/24 and LP/BR filters, causes the output of the filter to feedback into the input. This creates a peak in the spectrum at the cutoff point. With the BP12/24 and BR12/24 the resonance control widens or focuses the filter's effect around the centre frequency.

■ **Filter Env Mod Depth** - The Filter Cutoff EG Mod Amount parameter determines how much of the signal from the filter envelope is added to the cutoff frequency of the filter set by the Cutoff parameter.

Filter Envelope Section

Beat Producer has two envelope generators, one connected to the filter and the other connected to the amplifier. Each envelope generator has four stages:

Attack	Time taken for the envelope output to reach maximum output
Decay	Time take to fall from maximum to the sustain level
Sustain	% of maximum output to hold at until key released
Release	Time taken to die away to zero output after key released

The filter envelope parameters, in conjunction with the Filter Env Mod Depth parameter, are used to control how the filter opens and closes over time. Since the filter envelope is triggered at the beginning of each slice in a loaded sample loop, the envelope cannot be used to slowly open or close the filter as the loop plays. Instead, the filter envelope is used to create exciting and radical rhythmic "wah" type effects where the filter opens and closes rapidly on each beat of the loop

One tip for creating pulsating filter effects is to reduce the Filter Envelope Sustain control to zero, and increase the Filter Envelope Decay control a fraction. By reducing the Filter Cutoff control and increasing the Filter Env Mod Depth you should hear the filter "pulsing" – opening and closing very quickly in time with the beat. Use the Filter Resonance control to emphasis this effect and add "squelch"!

If you have a velocity-sensitive master keyboard (or your host sequencer allows you to set velocity values for MIDI notes in your track) then experiment with the Filter Velocity control. When this control is set to a positive amount (e.g. +50%) you will be able to control the filter envelope output by playing harder and softer on your keyboard. When you play a trigger note harder, Beat Producer will open the filter envelope more – when you play more softly it will open it less. The exact amount of variation you can create with velocity depends on the value of the parameter – higher values give a greater range of velocity response.

When the Filter Envelope Velocity control is set to a negative amount (e.g. –50%) the relationship between the played velocity and its effect on the filter envelope becomes inverted. Playing harder (higher velocity) will yield a lower output from the filter envelope.

Amplifier Envelope section

The parameters in this section are the same as for the Filter Envelope section. However, the second of Beat Producer's two envelope generators is dedicated to the amplifier which in turn determines what you hear from the plug-in's output.

These controls can be used to radically alter the dynamics of a sampled loop. For example, the settings given in the preceding section for a pulsating filter effect can be used in the amplifier envelope to create a super-tight staccato effect.

Also of particular note is how the Amplifier Envelope Release parameter can be used. When a sampled loop is sliced into individual beats in a program such as Recycle or ACID, the length of each slice determines the relative timing of each beat. To play the loop faster, software like Beat Producer simply stops each slice short of its full length and immediately plays the next slice. This has the effect of later slices seemingly "cutting off" earlier slices which can make a speeded-up sampled loop sound slightly unnatural. Since there is still some sound left to play in each slice, you can make a speeded-up loop sound more natural by increasing the Amplifier Envelope Release parameter a few milliseconds or so. This will allow each slice to play on and fade out even after a new slice has started playing.

When slowing down a loop, slices are played to their end, but the software waits before playing the next slice. This again sounds slightly unnatural, but the Amplifier Release can help here if the loop has been cleverly pre-formatted in Recycle. Sound Designers who use Recycle have an option called "stretch", which adds a small looped section of sound to the end of each slice that fades out quite quickly. When a loop is played at normal speed or faster, when the Amplifier Envelope Release parameter is at minimum, these stretched slices are no different from ordinary slices. However, if the sampled loop is slowed down, increasing the release parameter enables the stretched portion to be heard – this can help a loop sound more natural.

If you need dynamic control over the output level of a sampled loop, use Amplifier Envelope Velocity control. When this control is set to a positive amount (e.g. +50%), the loop will get quieter when you play more softly and louder when you play harder. The exact range of sensitivity is determined by the control setting. When the control is set to a negative amount (e.g. –50%) the effect of velocity on the output level is inverted – playing softly will make the loop play back louder.

9.4.2 Controls on Rack Synthesizer page 2

The second virtual page on the display screen contains controls that can be used to more deeply edit how their sampled loops are played.

Filter and Pitch LFO Section

LFO is short for Low Frequency Oscillator. You may be familiar with synthesiser oscillators that produce an audible tone – LFO's are identical but operate at a much lower frequency, often below the hearing threshold. The output of the LFO is not connected to the audio circuitry however. Instead, the rising and falling output is used to make the value of another parameter (for example filter cutoff) rise and fall automatically.

Beat Producer contains two very well-specified LFOs. The group of controls on the left relate to the Filter LFO, and those on the right related to the Pitch LFO.

■ **LFO Waveform** - The first control is the Waveform selector that allows you to choose the waveform that the filter LFO will output. The shape of each waveform is shown on the buttons themselves and are as follows:

Sawtooth (SAW)	A slow rise followed by rapid drop
Square (SQU)	A rapid rise, a period of hold, followed by a rapid drop and another period of hold
Triangle (TRI)	A slow rise, followed by a slow fall with sharp transitions between the two
Sine (SIN)	A slow rise, followed b a slow fall with smooth transitions between the two

■ **Key Retrig** - The LFO can be forced to always return to the beginning of its cycle every time a key is played (or a loop is triggered, depending on whether or not Loop Mode is active) with this parameter. When this parameter is ON and Loop mode is ON, the LFO will return to the beginning of its cycle every time a trigger is held down to play the loop. If this parameter is OFF, the LFO will run continuously and you will not be able to guarantee that when playback begins the LFO will be at a particular stage in its cycle.

If Loop mode is OFF however this parameter (when switched ON also) will cause the LFO to restart when a key is played.

■ **LFO Rate and Tempo Sync** - These two parameters in turn determine exactly how fast the LFO will cycle. When LFO Sync is OFF, the LFO Rate parameter is set as a value in Hz (cycles per second). However, when LFO Sync is ON, the LFO Rate parameter is set as a fraction of a beat and is directly linked to the host program's tempo.

■ **Filter LFO Mod Depth - Cutoff** - This control determines how much of the LFO signal is used to change (modulate) the Filter Cutoff setting on edit page 1. When set to a small positive value, the LFO will gently sweep the filter cutoff up and down over a small range. When set to a large positive value, the LFO will sweep the filter cutoff fully open and fully closed quite aggressively. Negative values for Filter LFO Mod Depth (e.g. –50%) will cause the LFO signal to be inverted before it is used to modulate the filter.

■ **Filter LFO Mod Depth – Resonance** - This control determines how much of the LFO signal is used to change (modulate) the Filter Resonance setting on edit page 1. This control is used in much the same way as the Filter LFO Mod Depth – Cutoff control described in the preceding section.

■ **Pitch Mod Depth and Pitch Mod Ratio** - On the far right there are two controls that determine how the Pitch LFO is used to change (modulate) the tuning of the loop being played. The first of these controls sets the amount pitch-shifting that will occur as the LFO signal sweeps up and down, the second determines the exact range over which that modulation will occur. For example, if the Pitch LFO waveform is set to Triangle, and the Pitch Mod Depth is set to +100% and the Pitch Mod Ratio left at 1:1, the playback pitch will be swept first up one octave, then down an octave and so on. If the Pitch Mod Ratio control is increased to 2:1, the playback pitch will sweep up and down two octaves instead.

9.4.3 Controls on Rack Synthesizer page 3

The third and final edit page contains controls that few users are likely to need to access on a daily basis. The controls on this page are used to determine how the two LFO signal generators will respond to MIDI messages from common controllers such as the Modulation Wheel, Velocity or Aftertouch. In the same manner as Edit Page 2, this page is divided into two sections with controls related to the Filter LFO on the left and the Pitch LFO on the right.

LFO Rate and Depth Modulation Section

■ **LFO Rate Modulation Source** - Determines which MIDI controller source signal will be used to change (modulate) the speed of the appropriate LFO. Choose from Velocity, Modulation Wheel or Aftertouch.

■ **LFO Rate Modulation Depth** - Sets the sensitivity of the LFO to rate modulation. If set to a positive value (e.g. +50%), increasing the rate modulation source MIDI controller will cause the LFO rate to speed up. If set to a negative value (e.g. –50%) the relationship will be inverted, i.e. decreasing the MIDI controller will cause the LFO rate to speed up.

■ **LFO Depth Modulation Source** - Determines which MIDI controller source signal will be used to change (modulate) the depth (output level) of the appropriate LFO. Choose from Velocity, Modulation Wheel or Aftertouch.

■ **LFO Depth Modulation Depth** - Sets the sensitivity of the LFO to depth modulation. If set to a positive value (e.g. +50%), increasing the depth modulation source MIDI controller will cause the LFO output to become stronger. If set to a negative value (e.g. –50%) the relationship will be inverted, i.e. decreasing the MIDI controller will cause the LFO rate to become stronger.

■ **Polyphony** - Sets how many voices this rack will use. To change the value of this control, click on it and drag vertically with the mouse (upwards to increase, downwards to decrease). With a typical loop you are unlikely to hear much difference if you decrease the polyphony (and have the amplifier envelope release set to minimum) as loop slices don't normally overlap when played at original or slower speed. If you are speeding a loop up, have a loop that has been specially sliced in Recycle using the "stretch" parameter and have the amplifier envelope release set above minimum, you may wish to adjust the polyphony to ensure a particular level of CPU consumption. You may also find the polyphony control useful if you have loop mode switched off and are playing slices manually.

Section Summary

❑ The main synthesizer controls for each rack are split across 3 pages, selected using the synth page selector control toward the right of the rack
❑ The most frequently used controls are on page 1 and control the tuning, amp envelope and filter type and envelope
❑ Page 2 contains controls to modify the pitch and filters using LFOs
❑ Page 3 contains controls to set the rack polyphony and affect the pitch and filter LFOs using MIDI controllers

9.5 Waveform Page

The Waveform page can be used to modify a loop in many creative ways. It is split into 3 sections:

- The left hand of the page consists of the Waveform display which shows the slices in the current loop.
- To the right of the waveform display there are two controls which control the appearance of the waveform display.
- The remainder of the controls on the right show information about the currently selected slice and provide ways to modify it.

If the current patch contains no loop information (for example a step sequencer only patch, or in cases where a One Shot Sample has been loaded to play across the keyboard) this display will show the message "(unassigned)".

9.5.1 Waveform display

The waveform shows the slices in the current loop. The scroll bar beneath the display can be used to navigate the slices, and the +/- buttons to the right of the scroll bar allow you to zoom in or out.

Clicking on individual slices within this display allows you select and modify individual slices. When a slice is selected the bottom right hand side of the page shows the following information about that slice:

- The volume of the slice
- The pan of the slice
- The pitch of the slice
- The name of the sample for the slice

All of the above can be edited for an individual slice.

The colour of the slice on the waveform also indicates several things about the slice:

- Bright blue: the slice will be played back normally
- Cyan: the slice is highlighted
- Dark blue: the slice has been muted and will be silent on playback
- Purple: the slice has been reversed

Multiple slices can be selected using shift-click to select a range of slices or ctrl-click to toggle the selection of individual slices. Where possible, you can select multiple slices and alter all slices at the same time.

The sound of a slice can be previewed on its own by clicking the slice to select it and holding the mouse down. Releasing the mouse will stop the preview.

It is also possible to layer additional sounds on top of certain slices.
Clicking the Show Layers button
will show the slices which have extra layered sounds on top.

To help get a better feel for the construction of a loop there is also a Show Current Slice button
Clicking this will highlight which slice in the loop is currently playing. This does not select slices, it simply shows what is being played back.

9.5.2 Loading samples in via the browser

In the same way as you can replace the sound of a slice or layer an additional sound onto a slice using copy/paste, you can also replace or layer a sound using the Browser.

To layer a new sound on top of an existing sample, activate the waveform layer display using the Show Layers button. Select the appropriate slot in the bottom half of the display.

Locate the sample you wish to use in the Browser (this must be a WAV, AIFF or OPS One Shot Sample file). You cannot load other file types into a slice. Double-click the item in the Browser and it will be loaded into the selected slice.

Don't forget you can preview the current slice by clicking it and holding the mouse down, and you can do the same thing to audition sounds in the Browser too.

To replace an existing sample, the same procedure is used, but you start by selecting the slice you want to replace.

As with paste, you can clear the layered or replaced sound if you wish to get back to the original.

9.5.3 Slice Operations

Each slice in the waveform can be altered in a number of ways – each of these functions can be initiated by right-click a slice and choosing an option from the context menu or by selecting a slice and clicking one of the buttons on the top right of the Waveform page:

Mute Mutes or unmutes a slice or slices.

Reverse Reverses or unreverses a slice or slices.

Copy Copies a slice for pasting elsewhere. Slices can be pasted to any slice in any rack, or can be pasted to a slot in the Step Sequencer described later in the manual.

Paste Pastes the copied slice over the selected slice. You can paste a slice over an existing slice to replace the sound in that slice, or you can layer a sound on top of an existing slice by using the Show Layers button to show the layered slices and pasting a slice into the bottom half of the display.

Swap to Left/Right You can exchange the sound in the current slice with the slice before or after. This is a great way of twisting existing loop in unexpected ways to provide a little variety without extensively reprogramming the loop.

Clear Sample If you have replaced a slice with another sound, or added a layered sound onto a slice, this is how you remove that replaced or layered sound. The original sound will reappear underneath. You cannot clear one of the original sounds in the loop, but you may mute it.

Load Sample Displays a file dialog where you can select a sample file to layer onto the current slice. Only works for empty slices.

Note: If the loop has been processed to add special "stretch" tails to each sample (e.g. in Recycle! or for imported ACID loops) the ends of each sample may contain unexpected data which may show up when reversed.

9.5.4 Slice Parameters

This section shows the parameters for the slice or slices selected in the Waveform Display. If multiple slices are selected it will still be possible to edit the volume, pan and pitch for slices and any relative differences between the slices will be maintained. How much you can change the value of a parameter will be limited if other slices with different values are selected too. However, if multiple slices have different values for the same parameter, the limits of movement of the parameter will be restricted to ensure all slices stay within the combined minimum and maximum values. In this way you can edit the overall level of a group of slices whilst preserving their individual differences.

Sample Name Displays the name of sample associated with the current slice – double-click this field to edit the name. If multiple slices are selected, "(multiple slices)" will be displayed and this field will not be editable.

Vol Sets the volume of the current slice between 0% and 100%.

Pan Sets the L/R balance of the current slice between –100% (fully L) and 100% (fully R).

Pitch Sets the pitch (in semitones) of the current slice. An offset of +24 semitones will cause the sound in the slot to be played two octaves higher than recorded pitch.

Section summary:

❑ The Waveform page allows you to examine the slices in a loop patch.

❑ You can mute or reverse any slice, replace or layer another sound on the slice and alter mute, volume, pan and name of each slice.

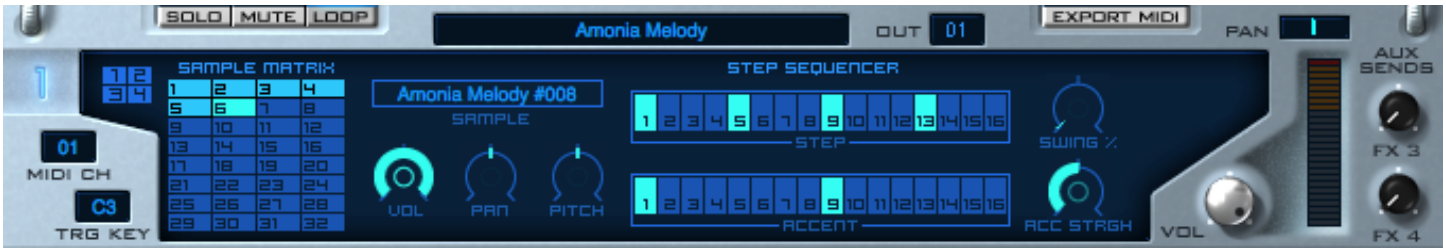
❑ You can copy and paste slices within the rack or from other racks, and you can load additional sounds into slices from the browser.

9.6 Step Sequencer Page

The step sequencer allows you to create your own rhythms from scratch using the Beat Producer library content or you can integrate patterns using your own imported content into the Beat Producer library content.

Each rack in Beat Producer contains a separate step sequencer, which can accommodate up to 32 sounds with independent volume, pan and pitch. Each sound has access to a 16-step sequencer with accent control per step. You build up pattern for each sound using the step sequencer for that slot, in the style of the old school drum machines.

Note: for the step sequencer to work, the rack must be set to Loop mode. Also, the Trig Key mode described in the Rack Controls section earlier also controls whether the step sequencer plays. If the Trig Key is set to C3 and the mode selected is "one note" the sequence will only be played when the MIDI note C3 is received by the rack. The "one octave" and "two octave" modes can also be used to allow the step sequence to be transposed up and down the keyboard in the same way as any other loop.



The Step Sequencer page is split into four sections:

Sample Matrix — On the left of the screen is the Sample Matrix which contains 32 independent slots. Each slot can contain a different sound.

Slot Parameters — To the right of the Sample Matrix are the parameters for the currently selected slot: sample name, volume, pan and pitch.

Step Sequencer — The step sequencer shows the sequence for the currently selected slot. The top line of buttons shows which beats will be triggered for the slot, and the bottom line of buttons allows accent to be set for each step.

Global Sequence Controls — The knobs on the right of the page show swing and accent settings for the current patch. These are common for all slots on the rack.

9.6.1 Sample Matrix

The sample matrix is used simply to indicate which slots in the sequencer you wish to work with. You select a slot in the matrix by clicking on it, and if any sound has been loaded into that slot, you will see the slot parameters appear to the right of the matrix. You can select multiple slots using shift- or ctrl-click (these operate identically) to change parameters for multiple slots together.

You can preview the sound in any slot by clicking the slot and holding the mouse down. Releasing the mouse will stop the preview.

Typically you will start by loading new samples into one or more slots, adjusting the volume/pan/pitch for the slot, then using the step sequencer slots to create a pattern.

9.6.2 Loading samples into slots using the Browser

You can start with an empty rack if you wish, or you can add a step sequence to an existing loop. Either way, select the target slot in the Sample Matrix.

Locate the sample you wish to use in the Browser (this must be a WAV, AIFF or OPS One Shot Sample file). You cannot load other file types into a slot. Double-click the item in the Browser and it will be loaded into the selected slot.

Don't forget you can preview the current slot by clicking it and holding the mouse down, and you can do the same thing to audition sounds in the Browser too.

To overwrite the sound in an existing slot, the same procedure is used, but you start by selecting the slice you want to replace.

The sound won't be played even if you trigger the loop at this point – to get the sample to trigger you need to put some steps in the step sequencer.

9.6.3 Creating a pattern for a slot

The step sequencer contains 16 buttons which correspond to 16 steps in a 4/4 one-bar pattern. The four beats in the bar start at positions 1, 5, 9 and 13.

If the button is lit, then the sound of the current slot will be played at that position in the bar. To toggle a button from off to on and vice versa, you simply click the button. So, if you have a kick drum loaded into the selected slot, activating the buttons at 1, 5, 9 and 13 will play a kick drum on every beat (when you trigger the loop via MIDI of course!)

If the accent button for a step is activated, the sound will be played louder. The increase in volume for accented steps is controlled by the Acc Strength knob on the right of the page and described in more detail later.

9.6.4 Sample Matrix

As has been described previously the Sample Matrix allows one or more slots to be selected for the purposes of loading a new sample from the Browser.

When a slot is selected the slot information to the right of the matrix shows the following information about that slice:

- The volume of the slot
- The pan of the slot
- The pitch of the slot
- The name of the sample for the slot

All of the above can be edited for an individual slot.

The colour of the slot also indicates several things about the slice:

- Mid blue: the slot is empty and has no sound loaded
- Bright blue: the slot has a sound loaded
- Cyan: the slot is highlighted
- Dark blue: the slot has been muted and will be silent on playback
- Purple: the sound on the slot has been reversed

9.6.5 Slot Operations

Several functions are available by right-clicking a slot and selecting one of the options in the context menu:

Mute Mutes or unmutes the current slot.

Reverse Reverse the sample in the current slot

Clear Sample Removes the sample in the current slot

Copy Copies the sound in the current slot. This can be then be pasted into any other slot in any rack, or can be pasted into a slice in the Waveform display described earlier in the manual.

Paste This pastes a previously copied slice or slot into the current slot.

Load Sample Displays a file dialog where you can select a sample file to load into the current slot. Only works for empty slots.

9.6.6 Slot Parameters

This section shows the parameters for the slot or slots selected in the sample matrix. If multiple slots are selected, it will still be possible to edit the volume, pan and pitch for slots and any relative differences between the slots will be maintained. However, if multiple slots have different values for the same parameter, the limits of movement of the parameter will be restricted to ensure all slots stay within the combined minimum and maximum values.

Sample Name Displays the name of sample associated with the current slot – double-click this field to edit the name. If multiple slots are selected, "(multiple slots)" will be displayed and this field will not be editable.

Vol Sets the volume of the current slot between 0% and 100%.

Pan Sets the L/R balance of the current slot between –100% (fully L) and 100% (fully R).

Pitch Sets the pitch (in semitones) of the current slot. An offset of +24 semitones will cause the sound in the slot to be played two octaves higher than recorded pitch.

9.6.7 Step Sequencer

The step seqencer is an easy-to-use 16-step (one bar 4/4 time) sequencer.

9.6.8 Steps

If the step is activated for a step the step will be lit (cyan) and the sound on the current slot will play at that step. If the step is deactivated, the step will be unlit (blue) and no sound on the current slot will not play at that step.

Clicking on a step will toggle it from activated to deactivated and vice versa.

If multiple slots are selected and the step is only activated for some slots, the step will be shown half cyan and half blue. Clicking on the step will activate it for all selected slots.

9.6.9 Accent

If the accent is activated for a step the step will be lit (cyan), and the step will play slightly louder than steps which have no accent. The volume difference is determined by the Acc Strength control described later.

Clicking on a step from accented to non-accented and vice versa.

As for the step display, if multiple slots are selected and accent is only activated on the step from some slots, the accent will be shown half cyan and half blue. Clicking on the accent button will switch accent on at the step for all selected slots.

9.6.10 Swing %

This sets the swing of the current step sequence. If this is set to 0% the step sequence will be played back straight, and as this control is moved toward 100% the sequence will be played back with more of a groove, until at 100% the sequence is played back with a heavy shuffle.

9.6.11 Acc Strength

This sets how loud an accented step is compared to a non-accented step. At 0%, accented steps are played at the same volume as non-accented steps. At 100%, accented steps are played at roughly twice the volume of non-accented steps.

This parameter is shared between all slots in the sequence.

9.7 FX Page

The FX page contains all the controls you need to set up the effects in Beat Producer. Each of the four FX Units routes its processed output to one of the four main stereo outputs that connect to the host program. FX Unit 1 and FX Unit 2 have additional controls (shown above) for routing some of their processed signal into FX3 and FX4. FX3 and FX4 only have Output selectors and cannot route their processed signals into any other FX Units.

The variety of possible FX routings is complex, and covered in much more detail in the Appendix. A summary only follows:

FX Unit 1 Receives its input from the FX1 input buss of the Mixer. To process a Rack with FX1, assign the output of that Rack to the FX1 input buss in its Output selector. FX1 can send some of its processed output to FX3 and FX4.

FX Unit 2 Receives its input from the FX2 input buss of the Mixer. To process a Rack with FX2, assign the output of that Rack to the FX2 input buss in its Output selector. FX2 can send some of its processed output to FX3 and FX4.

FX Unit 3 Receives its input from the FX3 auxiliary buss. To process a Rack with FX3, increase the FX3 send level of that Rack OR first assign the Rack to the FX1 or FX2 input buss and then increase the FX1/FX2->FX3 send in the FX screen. The Rack will then be processed with both FX units in a chain.

FX Unit 4 Receives its input from the FX4 auxiliary buss. To process a Rack with FX4, increase the FX4 send level of that Rack OR first assign the part to the FX1 or FX2 input buss and then increase the FX1/FX2->FX4 send in the FX screen. The Rack will then be processed with both FX units in a chain.

Each of the effects units operates mostly in the same way, though only FX1 and FX2 have Send FX3 and Send FX4 controls:

9.7.1 FX unit selection indicator

This shows the name of the FX unit and is highlighted to show the currently selected FX unit. Changing any control in an FX unit will select that unit, but you can also click on the selection indicator to manually change the currently selected FX unit.

9.7.2 Patch

This shows the name of the current selected FX patch if an FX patch has been loaded, otherwise it shows "unassigned". You cannot create an FX patch from scratch, you must load in a patch from your installed libraries, and change it as required.

To load an FX patch from the menu: click the arrow to the right of the field. This will bring up a menu of all FX patches in your installed libraries, sorted by effect type and algorithm. Click on a patch to load it into the FX unit.

To load an FX patch from the Browser: select the unit you wish to load the FX patch into, and double-click the FX patch in the browser.

Double-clicking on the patch name allows you to edit the FX patch name. Right-clicking on the field brings up a menu with some additional options:

Load FX patch	This allows you to load a Beat Producer FX Patch file (.OFF extension) from anywhere on your hard disk into the current FX unit.
Save current FX patch	This saves the FX patch in the unit as a Beat Producer FX Patch file (.OFF extension).
Delete FX patch	This removes the FX patch from the FX unit, and resets the FX units to its default settings. The file on disk is not deleted.

9.7.3 Algorithm

When an FX patch is loaded onto an FX unit, the algorithm used by that FX unit can be selected from one of the 18 different types by clicking in the box below the FX Patch Name to display a pop-up menu of choices.

Each algorithm has up to six parameters that can be adjusted. The name and current value of each of the parameters is shown on the knobs numbered 1-6. When a parameter is not used by a particular algorithm the knob label will show "inactive". Dragging the knob with the mouse will change the value of the parameter. Note that if the parameter assigned to a knob has set of choices rather than a range of values, the knob will "jump" from choice to choice when turned.

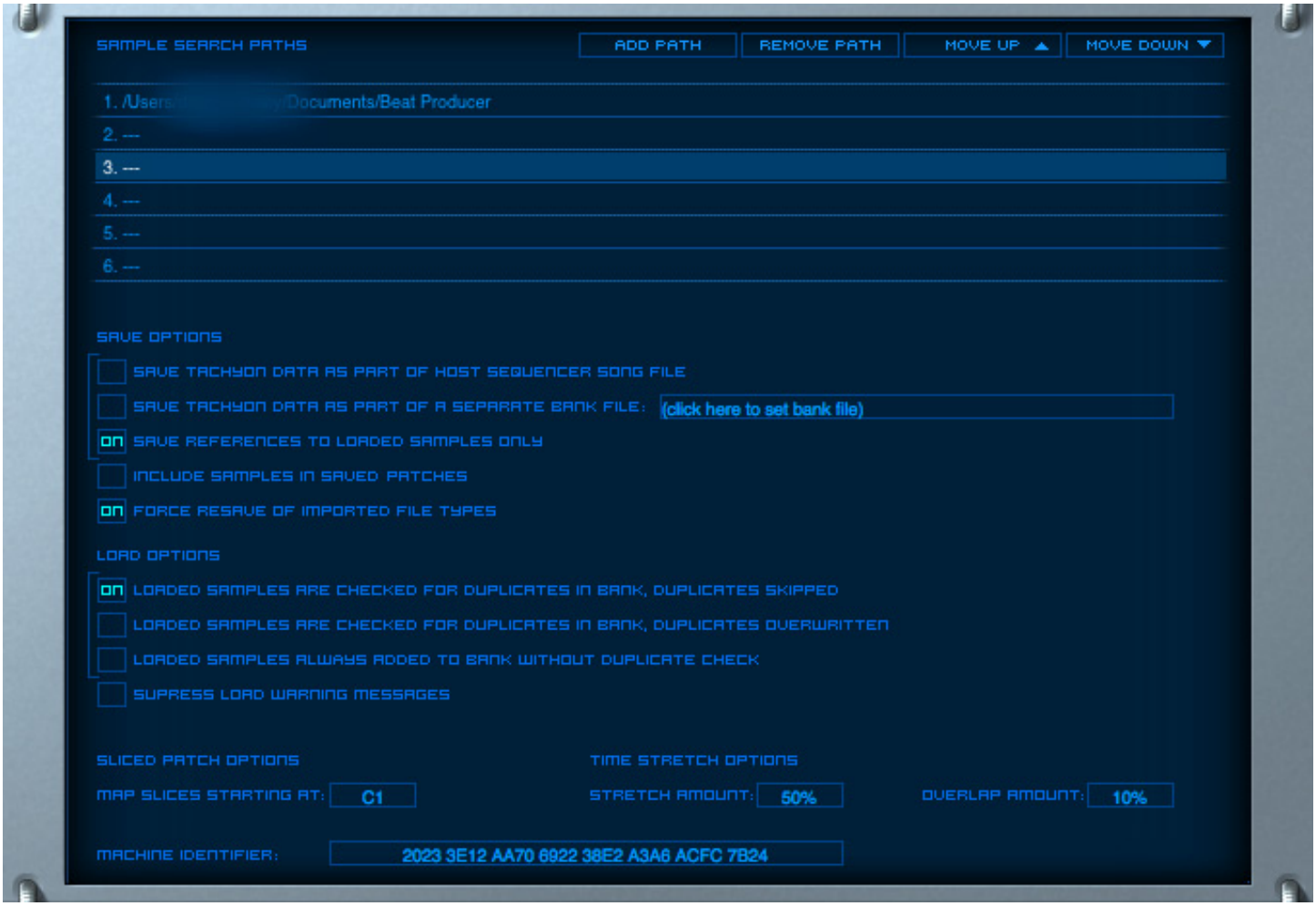
A full list of all 18 FX algorithms and their adjustable parameters can be found in the Appendix.

The Algorithm Parameter displays are ideal for real-time tweaking and recording parameter automation into your host program.

Section Summary

❑ The FX Screen shows settings for each of the four FX units
❑ FX Units 1 and 2 have additional routing capabilities
❑ Use the FX Screen to edit FX Patches
❑ Full descriptions of all FX algorithms and parameters can be found in the Appendix

9.8 The Options Screen



The Options Screen is accessed when the Options button at the top of the interface is clicked. Click any of the other buttons in the button strip to hide the Options Screen.

The main functions of the Options Screen are as follows:

- **Configuring the file paths the engine will use to locate samples and other files**
- **Configuring how the engine will save data**
- **Configuring how the engine will handle duplicate samples**

The controls on this screen are divided into three groups:

- **The Search Path List**
- **The Save Options**
- **The Load Options**

These are covered in detail in the following sections.

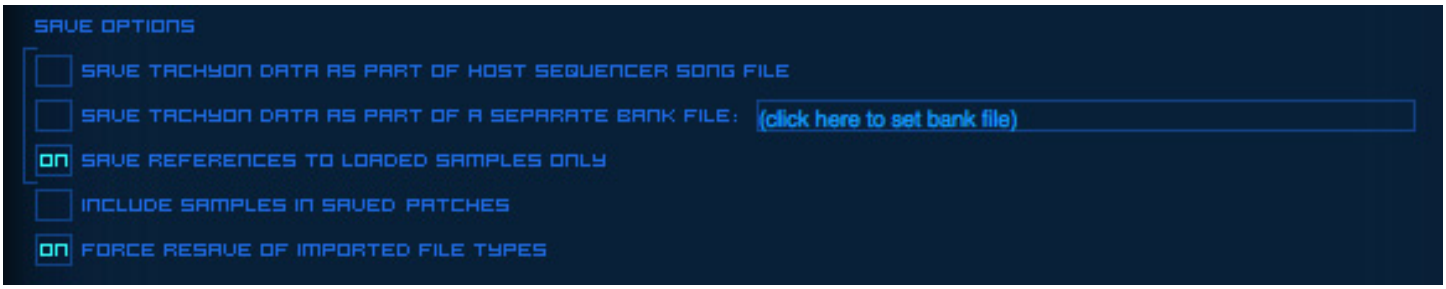
9.8.1 Search Path List

This display shows where the engine will search for content to display in the Browser, and where to reload samples from when loading Multi Patches, and Patches.

Click to select a row in the list, and then click the Add Path button to display a path selection dialog box. Use the Move Up and Move Down buttons to prioritise important paths that you want to be searched first. Search Paths are scanned recursively, i.e. the engine will also look in subfolders nested inside the path specified.

Right-click (Command-click on Mac) to display a contextual menu relating to the Search Path List. From this menu you can rescan all the search paths and rebuild the Browser.

9.8.2 Save Options



The first three Save Options are grouped as shown by the bracket. These configure how the engine should store its data when asked to save by the host sequencer package. There are three options:

Save Beat Producer Data as part of host sequencer song file A complete Bank file is stored within the host sequencer song file whenever the host asks plug-ins to save data. Depending on the amount of samples loaded, this may increase the size of the song file considerably and take some time to save. However, it does ensure that every single sample and setting will be reloaded next time the song is edited.

If you are using Apple Logic Pro or Garageband you should not select this option as your sequencer can only store 3.5 mb of plug-in data within the song file. If you do have this option selected while running the Audio Unit version in Logic Pro or Garageband, you may see spurious "Out of Memory" errors when saving your song file. If this happens, the song file may become corrupted.

Save Beat Producer Data as part of a separate Bank file A complete, separate Bank file is stored in a location of your choice, and updated each time the host asks plug-ins to save data. You can use this option to archive all your samples and settings relating to a song if you are working in a host that limits the amount of data a plug-in can store within the song file. You must set this option when you first start working on a new song. Only the location of the Bank file is saved within the song.

Save references to loaded samples only This is the default and the mode you should use normally. In this mode, a complete set of Multi Patch, Patch, sample and FX Patch settings is saved within the file. For any loaded sample that can be referenced to an external file, only the file name and path of the sample is stored. If a loaded sample cannot be referenced, it is embedded in the song file (which increases the song file size subject to the limitations of the host). Most samples can usually be referenced.

When a song containing referenced samples is reloaded, the engine will first attempt to find their source files by examining the stored location in the file. If the source files for the samples cannot be found in the stored location, the search paths will be checked for matching files.

If the source files still cannot be found after searching all eight Search Paths, the song will load but the samples will be marked as "offline" and you will receive an error message. You can still edit Patches and Multis that contain offline samples, and save your work – however, at the next possible opportunity you should add a Search Path to point to the files containing the source samples or copy the source files to an existing Search Path.

The remaining two options in this group determine what to do with Patches.

Include Samples in saved Patches This applies to Banks, Multi Patches and Patches. If this option is NOT checked, sample references will be saved as described previously. If this option is checked, samples will be converted to 16-bit, losslessly compressed format and stored within the file. The default is to save references only, and you should use this mode normally unless you are creating archives of your Patches. Note that samples at a higher resolution than 16-bit will be reduced in bit depth when compressed.

Force resave of imported file types When a non-native file is imported, you have the option of automatically resaving that as a native Beat Producer Patch or Multi when this option is checked. Resaving of imported files is advised, as once this is done samples in those files can be referenced. This option ignores the status of the Include Samples in Saved Patches option and always embeds the samples.

9.8.3 Load Options

The first three Load Options are grouped as shown by the bracket. Use these options to configure how the engine should handle duplicate samples.

Loaded samples are checked for duplicates in bank, duplicates skipped
If a Multi Patch or Patch being loaded contains a sample that is already present within the Bank, the duplicated samples from the loaded file will not be loaded and the Zones will be repointed to the existing samples.

Loaded samples are checked for duplicates in bank, duplicates overwritten
If a Multi Patch or Patch being loaded contains a sample that is already present within the Bank, the duplicated samples from the loaded file will overwrite the ones in memory and the existing Zones will be repointed to the new samples.

Loaded samples are always added to bank without duplicate check
Duplicate checking will not take place if this option is checked. If you load multiple copies of a sample it will become duplicated in memory.

9.8.4 Sliced Patch/Timestretch Options

These global options control how the engine imports Apple, REX and ACID loops.

Loop Import Start Key — When a sampled loop in REX or ACID format is imported into Beat Producer, a MIDI file is automatically generated that plays the slices in the file. This number spinner control tells the plug-in what MIDI note slices should start to be mapped at when the file is imported. Once a file has been imported this option has no further effect.

Stretch Factor — When an ACIDized WAV file is imported into the plug-in, some processing takes place on the samples to improve the sound of the time stretching when the loop is slowed down. A seamlessly looping segment from each slice is automatically generated and copied to the end of each slice. This parameter controls how big the looping segment is relative to the slice length. Once a file has been imported this option has no further effect.

Overlap Factor — The looping segment added to ACID slices is overlapped with the original data to smooth the transition. This parameter determines the width of the overlapping region. Once a file has been imported this option has no further effect.

9.8.5 Copy Protection

To fully function, Beat Producer needs a license file to be present somewhere along one of the Search Paths shown in at the top of the Options Screen. To get a license file, you must register your product with AMG.

Machine ID

The Machine ID is a unique "fingerprint" of your system based on metrics taken from certain hardware elements. It does not contain any information that can identify you as a person, and it is unique for that particular combination of hardware on your system.

Your Machine ID is required by AMG as part of the registration process. This allows AMG to generate a unique License File for your exact Computer. Without this license file, the plug-in cannot decrypt the files in the Library and will not be able to load any sounds.

To make it easy to register, clicking on the Machine ID display will reveal a menu with three options

- **Copy To Clipboard**
- **Register at AMG website**
- **Save to File**

If you copy the Machine ID to your clipboard, this will enable you to use the normal paste command in your email or web browser application during the registration process to automatically complete the Machine ID field in the registration form, or when sending an email query to AMG.

Selecting the Register option will open your default web browser, connect to the internet if necessary and automatically take you to the registration page on our website. The Machine ID field will be filled in automatically for you.

Many musicians prefer to keep their Digital Audio Workstations separate from the internet. If you prefer, you can save the Machine ID to a simple text file, copy it over to a machine where you do have internet access and submit your registration request from there.

If you make significant changes to the hardware of your system, your machine ID may change unexpectedly and cause your license file to become invalid.

Remember, you do need to have a working email address to receive your license file.

When you receive your license file, save a copy of it in a folder, and then make sure that folder is referenced in the Search Paths section of the Options Screen.

Section Summary

- ❑ **Samples can be referenced, or included in files**
- ❑ **Set Search Paths in the Options Screen to show the engine where to look for files**
- ❑ **Search Paths are also used to show the engine where to find samples**
- ❑ **Search Paths are also used to show the engine where to look for the License File**

10 Appendix 1 – FX Algorithms and Adjustable Parameters

Beat Producer's stereo FX Algorithms (and the adjustable parameters of each) are listed in this Appendix.

10.1 Delay

Delay with standard and ping pong modes, with tempo sync and a filter on the feedback line.

10.1.1 Mode

The delay effect has 5 modes:

Stereo (ST)	The left and right channels of the input signal are delayed by the same amount and sent to the left and right outputs.
Inverse Stereo (INV ST)	The left and right channels of the input signal are delayed by the same amount, but the processed left channel is sent to the right output channel and vice versa.
Mono (MONO)	The left and right input signals are mixed together, delayed and the same delayed signal is sent to both left and right output channels.
Mono Left-to-Right (L-R)	The left and right input signals are mixed together as for Mono mode, but the delays are alternately sent to the left and right output channels. The first delay is sent only to the left channel, the second only to the right, the third to the left, etc.
Mono Right-to-Left (R-L)	The left and right input signals are mixed together as for Mono mode, but the delays are alternately sent to the left and right output channels. The first delay is sent only to the right channel, the second only to the left, the third to the right, etc.

10.1.2 Tempo Sync

This controls whether the delays will be synchronised to the host tempo (ON) or independent of the host tempo (OFF). Synchronisation will not function correctly if your host sequencer does not support sending tempo information to plug-ins.

10.1.3 Delay Time

The length of time between delays. If tempo sync is off, this ranges between 50ms and 2000ms (2 seconds). If tempo sync is on, this ranges from 1/16 of a bar (1/4 of a beat) to 16/16 (1 bar).

10.1.4 Feedback

The output of the delay can be fed back into the input of the delay to produce multiple delays. This value controls the amount from 0% (no feedback) to 100% (maximum feedback). 100% feedback still attenuates the signal to a certain extent to reduce unpleasant feedback. Negative values will invert the phase of the signal before feeding it back into the input. This may give a more pleasant sound in some circumstances.

10.1.5 Filter Type

The type of filter applied to the output of the delay, either lowpass (LP) to reduce the treble in the output or highpass (HP) to reduce the bass in the output.

10.1.6 Cutoff

The point in the audio spectrum at which the delay filter starts to take effect. For a lowpass filter, any frequencies above this value will be reduced in volume. For a highpass filter, any frequencies below this value will be reduced in volume. The range is 55-21096 Hz.

10.2 Reverb

Reverb with variable diffusion, damping and early reflections

10.2.1 PreDelay

This controls the amount of delay before the reverb is heard (0-250ms).

10.2.2 Room Size

This controls the size of the room simulated by the reverb (0%-100%). Low values will make the sound appear to be in a smaller space, higher values will sound like playback is occurring in a larger space.

10.2.3 Diffusion

This value simulates the type of walls in the space being simulated. Low diffusion settings cause discrete reflections much like hard stone walls, whereas higher diffusion settings give a denser reverb with no audible discrete reflections much like a hall draped with soft furnishings.

10.2.4 Reverb Time

This sets the overall length of the reverb between 500ms and 15000ms (15 seconds).

10.2.5 High Frequency (HF) Damping

This control dampens the treble in the reverb signal over time, lower values tend to sound colder and higher values will make the reverb sound warmer.

10.2.6 Early:Late Balance

This control sets the balance between the early reflections of the reverb (where the sound is "reflected" immediately off the surfaces nearby) and the late reflections (where the sound has bounced around and repeated many times and built up a diffuse tail). This value ranges from 0:100 (early reflections only) to 100:0 (late reflections only).

10.3 Chorus

Chorus with variable feedback and damping.

10.3.1 Delay Time

Sets the delay time of the chorus between 5ms and 40ms. This affects the character of the chorused sound.

10.3.2 LFO Rate

Low values of this parameter will cause slow sweeping effects, high values will result in wild detuning effects. Ranges between 0Hz to 2.5Hz.

10.3.3 LFO Depth

This parameter determines how much effect the LFO has on the chorus (0% - 100%).

10.3.4 Feedback

This parameter determines how much of the chorus output is mixed back into the FX input. A value of 0% will produce a simple, thin-sounding chorus. Higher values will produce thicker, denser effects.

10.3.5 Stereo

If this parameter is set above 0%, the effect will use the LFO settings to pan the effect around the left and right channels. The intensity ranges from 0% to 100%.

10.3.6 High Cut

This parameter allows you to reduce the treble of the chorus output. Frequencies above this value will be reduced with a lowpass filter. Values range from 21096Hx (minimal treble reduction) to 880 (significant treble reduction).

10.4 Flanger
Flanger with tempo sync control

10.4.1 Delay Time
Sets the delay time of the flanger between 0ms and 5ms. This affects the character of the flanged sound.

10.4.2 LFO Sync
If set to ON, the LFO will be synchronized to host tempo where available. If set to OFF, the LFO will independent of the host tempo.

10.4.3 LFO Rate
Low values of this parameter will cause slow sweeping flange effects, high values will result in squelchy effects. If tempo sync is off, this value can be altered from 0Hz to 2.5Hz. If tempo sync is on, this value ranges from 32/1 (LFO cycle every 32 beats), through 1/1 (LFO cycle every beat) to 1/32 (32 LFO cycles every beat).

10.4.4 LFO Depth
This parameter determines how much effect the LFO has on the flanger (0% - 100%).

10.4.5 Feedback
This parameter determines how much of the flanger output is mixed back into the FX input. A value of 0% will produce a simple, thin-sounding flange. Higher values will produce thicker, denser flange effects.

10.4.6 Stereo
If this parameter is set above 0%, the effect will use the LFO settings to pan the effect around the left and right channels. The intensity ranges from 0% to 100%.

10.5 Phaser
Phaser with up to 16 stages and tempo sync control

10.5.1 Stages
This parameter determines the number of stages used in the phaser effect. A low value will produce a thinner effect, a higher value will produce a more pronounced swirling effect. The range is 1 to 16 stages.

10.5.2 LFO Sync
If set to ON, the LFO will be synchronised to host tempo where available. If set to OFF, the LFO will independent of the host tempo.

10.5.3 LFO Rate
Low values of this parameter will cause slow sweeping phaser effects, high values will result in squelchy effects. If tempo sync is off, this value can be altered from 0Hz to 2.5Hz. If tempo sync is on, this value ranges from 32/1 (LFO cycle every 32 beats), through 1/1 (LFO cycle every beat) to 1/32 (32 LFO cycles every beat).

10.5.4 LFO Depth
This parameter determines how much effect the LFO has on the phaser (0% - 100%).

10.5.5 Feedback
This parameter determines how much of the phaser output is mixed back into the FX input. A value of 0% will produce a simple, thin-sounding phasing. Higher values will produce thicker, denser effects.

10.5.6 Stereo
If this parameter is set above 0%, the effect will use the LFO settings to pan the effect around the left and right channels. The intensity ranges from 0% to 100%.

10.6 Rotary Speaker

Rotary speaker simulation with variable vibrato and tremolo.

10.6.1 Balance

The rotary speaker can apply both vibrato (pitch modulation) and tremolo (volume modulation) to a sound. If balance is turned fully left (0:100) only vibrato will be applied to the sound. If balance is turned fully to the right (100:0) only tremolo will be applied. Values in the middle will apply varying amounts of each.

10.6.2 Speed

This parameter controls the speed of both vibrato and tremolo. The range is 1.5Hz (slow) to 8Hz (fast).

10.6.3 Vibrato

This parameter controls how much vibrato is applied to the signal, from 0% (none) to 100% (maximum).

10.6.4 Tremolo

This parameter controls how much tremolo is applied to the signal, from 0% (none) to 100% (maximum).

10.7 2-Band EQ

This is a 2-band parametric equaliser with frequency, Q, and Gain parameters for each band.

10.7.1 Lo Freq/High Freq

Determines the centre frequency of the low/high band. Lo Freq ranges from 55Hz to 1760Hz, Hi Freq ranges from 880Hz to 21096Hz.

10.7.2 Lo Q/Hi Q

Determines the width of the boost or cut around the centre frequency. A low Q will apply the boost or cut to a very narrow region around the centre frequency, a high Q will apply the boost or cut to a wider region. The range of the parameter is 0.05 octaves (narrow) to 4 octaves (wide).

10.7.3 Lo Gain/Hi Gain

Determines the amount of boost or cut to apply to the band, ranging from –12dB of cut to +12dB of boost.

10.8 3-band EQ

This is a 3-band equaliser with a fixed Q for each band.

10.8.1 Lo Freq/Mid Freq/High Freq

Determines the centre frequency of the low/mid/high band. Lo Freq ranges from 55Hz to 1760Hz, Mid Freq ranges from 110Hz to 14080Hz, Hi Freq ranges from 880Hz to 21096Hz.

10.8.2 Lo Gain/Mid Gain/Hi Gain

Determines the amount of boost or cut to apply to the band, ranging from –12dB of cut to +12dB of boost.

10.9 Compressor

Compressor with soft/hard knee modes.

10.9.1 Threshold

The volume level above which the sound will be compressed, ranging from –50dB to 0dB. A value of –50dB compresses pretty much all the input (since most input will be louder than –50dB), whereas a value of 0dB will compress nothing (since no input can be louder than 0dB).

10.9.2 Ratio

The amount of compression that will be applied to a signal above the threshold. This value ranges from 1:1 (no compression) thru 29.7:1 (major compression) to Limit, which limits all input signals to the threshold level.

10.9.3 Knee

Two modes are available: hard knee where no compression is performed below the threshold value, and compression is applied at its full ratio as soon as the threshold level has been exceeded, or soft knee, where the compression is more gradually introduced around the threshold level.

10.9.4 Attack

This parameter determines how quickly the compression starts after the input signal has exceeded the threshold level. The range is from 0ms (which will tame peaks quickly but is more likely to be audible) to 1000ms (which will not tame peaks as well, but is less likely to be audible).

10.9.5 Release

This parameter determines how quickly the compression is stopped after the input signal has dropped below the threshold level. The range is from 10ms (quick) to 1000ms (slow).

10.9.6 Output Gain

This parameter determines how much gain will be applied to the output signal to "make-up" for the loss in level caused by compression. This value ranges from 0dB to 50dB of gain.

10.10 Limiter

The limiter is very similar to the compressor but ensures that the level is guaranteed never to exceed the threshold level.

10.10.1 Threshold

The maximum output level to be allowed through the limiter, ranging from –50dB to 0dB. A value of –50dB will limit the input signal to be very quiet, whereas a value of 0dB will leave the input signal untouched.

10.10.2 Attack

This parameter determines how quickly the limiter starts after the input signal has exceeded the threshold level. The range is from 0ms (which will tame peaks quickly but is more likely to be audible) to 1000ms (which will not tame peaks as well, but is less likely to be audible).

10.10.3 Release

This parameter determines how quickly the compression is stopped after the input signal has dropped below the threshold level. The range is from 10ms (quick) to 1000ms (slow).

10.10.4 Output Gain

This parameter determines how much gain will be applied to the output signal to "make-up" for the loss in level caused by compression. This value ranges from 0dB to 50dB of gain.

10.11 Gate
The gate effect cuts out all quiet sounds below a given volume threshold.

10.11.1 Threshold
The minimum output level to be allowed through the gate. When the input signal drops below this level the gate will activate, shutting out the sound. This value ranges from –50dB to 0dB. A value of –50dB will allow pretty much all input signals through, whereas a value of 0dB will activate the gate all the time, silencing the output completely.

10.11.2 Attack
This parameter determines how quickly the gate is switched off after the input signal has exceeded the threshold level. The range is from 1ms to 1000ms.

10.11.3 Release
This parameter determines how quickly the gating is activated when the input signal has dropped below the threshold level. The range is from 10ms (quick) to 1000ms (slow).

10.12 Distortion
Warm distortion effect with simple EQ.

10.12.1 Input Gain
This parameter determines the amount of trim applied to the input signal before the distortion is applied. This value ranges from –10dB (reduces the volume of the signal significantly) to 0dB (no reduction).

10.12.2 Pre-Amp Gain
This parameter controls the amount of distortion applied to the input signal, and ranges from 0dB (no distortion) to 36dB (maximum distortion).

10.12.3 Character
This parameter changes the "character" of the distortion. Values range from 0% (normal) to 100% (smooth).

10.12.4 Low Cut
This parameter allows you to reduce the bass of the distortion. Frequencies below this value will be reduced with a highpass filter. Values range from 55Hz (minimal bass reduction) to 440Hz (significant bass reduction).

10.12.5 High Cut
This parameter allows you to reduce the treble of the distortion. Frequencies above this value will be reduced with a lowpass filter. Values range from 21096Hx (minimal treble reduction) to 880 (significant treble reduction).

10.13 Crusher

Bit crusher effect to digitally distort the sound.

10.13.1 Bits

This reduces the bit depth of the input signal. Values range from 2 bits (almost destroyed) to 16 bits (listenable).

10.13.2 Sample Rate

This parameter reduces the sample rate of the input signal. Values range from 44100Hz (high quality sound) to 2205Hz (low quality sound).

10.13.3 Overload

This provides a boost to accentuate the distortion of the input signal. Values range from 0dB (no boost) to 36dB (maximum boost).

10.13.4 Bass/Treble

These parameter allow the bass or treble of the output to be cut or boosted. Values range from –12dB of cut to +12dB of boost in each case.

10.13.5 Output

These output of the effect may be reduced in volume using this parameter. Values range from –36dB (maximum volume reduction) to 0dB (no volume reduction).

10.14 LFO LP Filter/LFO HP Filter

These two effect apply a lowpass or highpass filter respectively to the input signal. The frequency of the filter is modulated by an LFO, which can be synced to tempo.

10.14.1 LFO Wave

The following LFO shapes are available:

Sawtooth (SAW)	A slow rise followed by rapid drop
Square (SQU)	A rapid rise, a period of hold, followed by a rapid drop and another period of hold
Triangle (TRI)	A slow rise, followed by a slow fall with sharp transitions between the two
Sine (SIN)	A slow rise, followed b a slow fall with smooth transitions between the two

10.14.2 LFO Sync

If set to ON, the LFO will be synchronised to host tempo where available. If set to OFF, the LFO will independent of the host tempo.

10.14.3 LFO Rate

This parameter determines the frequency of the LFO. If tempo sync is off, this value can be altered from 0Hz to 20Hz. If tempo sync is on, this value ranges from 32/1 (LFO cycle every 32 beats), through 1/1 (LFO cycle every beat) to 1/32 (32 LFO cycles every beat).

10.14.4 LFO Depth

This parameter determines how much effect the LFO has on the filter cutoff (0% - 100%).

10.14.5 Cutoff

This parameter determines the starting frequency of the filter, before it is modulated by the LFO. Values range from 0% to 100%.

10.14.6 Resonance

This parameter determines the resonance of the filter. At high values, the filter will boost the frequencies around the cutoff frequency significantly. Values range from 0% (no resonance) to 100% (maximum resonance).

10.15 Auto Filter (Wah)

This operates in a similar fashion to the LFO LP/HP Filter effects, but the filter cutoff frequency is modulated by the volume of the input signal. This makes it straightforward to produce auto-wah style filter effects.

10.15.1 Filter Type

There are 4 selectable filter types:

LP24 24dB/octave lowpass filter (filters out frequencies higher than the cutoff)
HP24 24dB/octave highpass filter (filters out frequencies lower than the cutoff)
BP24 24dB/octave bandpass filter (lets only those frequencies close to the cutoff through)
BR24 24dB/octave band reduction filter (filters out frequencies close to the cutoff)

10.15.2 Cutoff

This parameter determines the starting frequency of the filter, before it is modulated by the input sound. Values range from 0% to 100%.

10.15.3 Resonance

This parameter determines the resonance of the filter. At high values, the filter will boost the frequencies around the cutoff frequency significantly. Values range from 0% (no resonance) to 100% (maximum resonance).

10.15.4 Depth

This parameter determines how much the level of the input signal affects the cutoff frequency. Positive values mean that a louder input signal will increase the cutoff frequency. Negative values mean that a louder input signal will decrease the cutoff frequency. Values range from –100% (large cutoff decrease for loud input) thru 0% (input volume does not affect cutoff) to +100% (large cutoff increase for loud input).

10.16 Auto Gate/Pan

This effect uses an LFO to modulate the volume (and optionally pan) of the input signal.

10.16.1 LFO Wave

The following LFO shapes are available:

Sawtooth (SAW) A slow rise followed by rapid drop
Square (SQU) A rapid rise, a period of hold, followed by a rapid drop and another period of hold
Triangle (TRI) A slow rise, followed by a slow fall with sharp transitions between the two
Sine (SIN) A slow rise, followed b a slow fall with smooth transitions between the two

10.16.2 LFO Sync

If set to ON, the LFO will be synchronised to host tempo where available. If set to OFF, the LFO will independent of the host tempo.

10.16.3 LFO Rate

This parameter determines the frequency of the LFO. If tempo sync is off, this value can be altered from 0Hz to 20Hz. If tempo sync is on, this value ranges from 32/1 (LFO cycle every 32 beats), through 1/1 (LFO cycle every beat) to 1/32 (32 LFO cycles every beat).

10.16.4 LFO Depth

This parameter determines how much effect the LFO has on the level of the signal, from 0% (no effect on the input signal) to 100% (the volume of the signal will be alternate between full volume and silent).

10.16.5 Stereo

This parameter determines whether the effect will only affect the overall volume or whether it will pan the sound from left to right instead. Values range from 0% (affects both channel volumes simultaneously) to 100% (affects channels at opposite times, creating an auto pan effect).

11 Appendix 2 – Signal Routing Diagrams

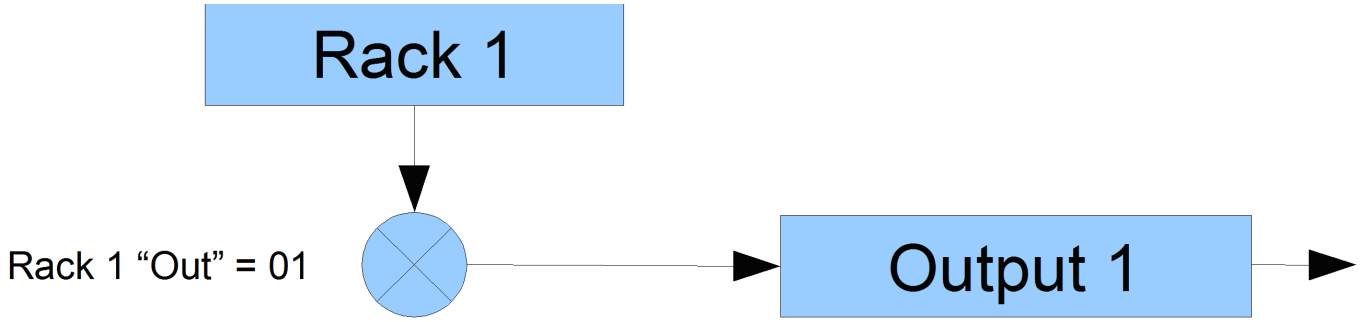
Beat Producer has four separate outputs which allows you to route different racks out to your host sequencer separately

What facilities you have will depend upon what is supported by your host sequencer, but the individual outputs are accessible in Steinberg Cubase SX (tracks automatically appear in the mixer), in Mackie Tracktion (by dragging the Beat Producer plug-in into a Tracktion rack), in Ableton Live 5 (by selecting Beat Producer's outputs as inputs for a separate audio track) and in Sony ACID 5 (tracks automatically appear in the mixer). Please consult your sequencer's manual for further details.

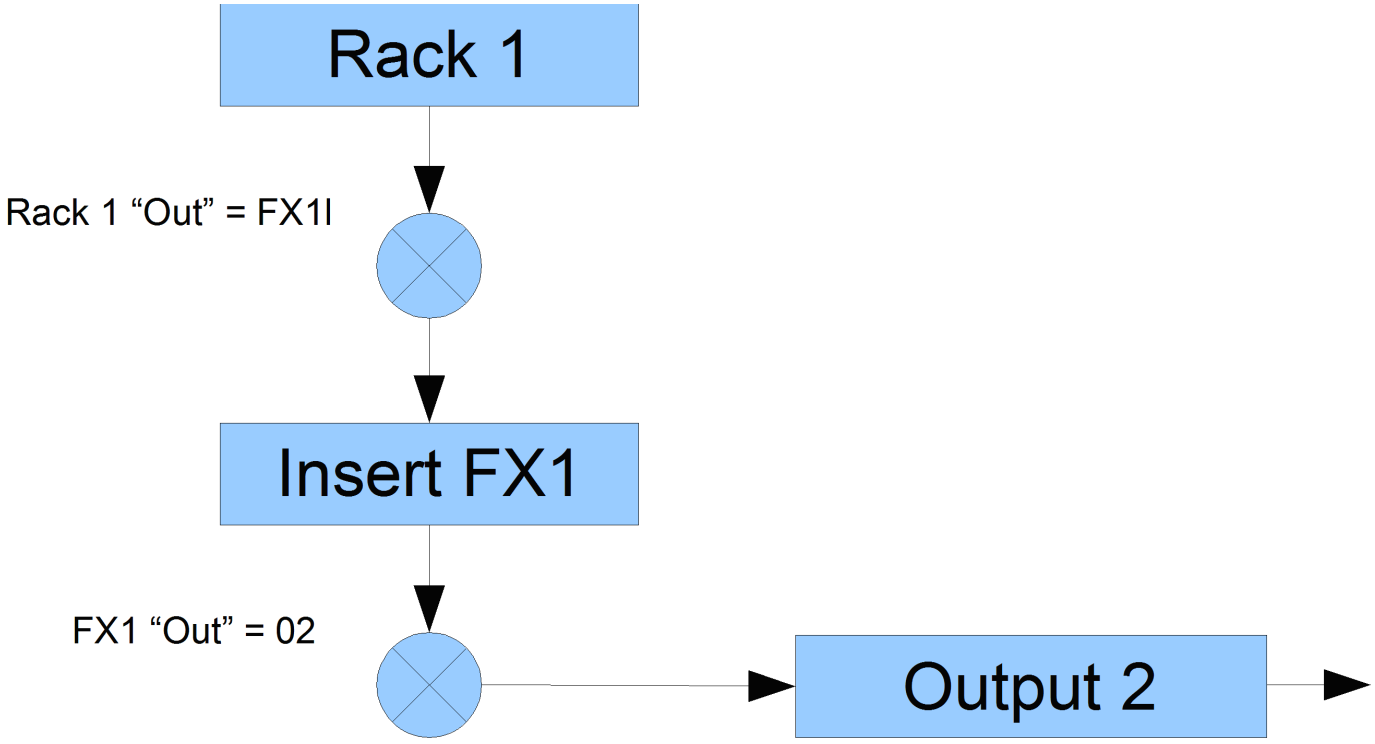
By default, each rack routes its output to output 1, but you can choose a different output for any rack using the rack's Out menu.

Each rack can also be routed to insert FX1 or FX2 – once you route to an insert FX unit, all output from the rack is routed directly to that FX unit, and the sound no longer immediately appears on any output.

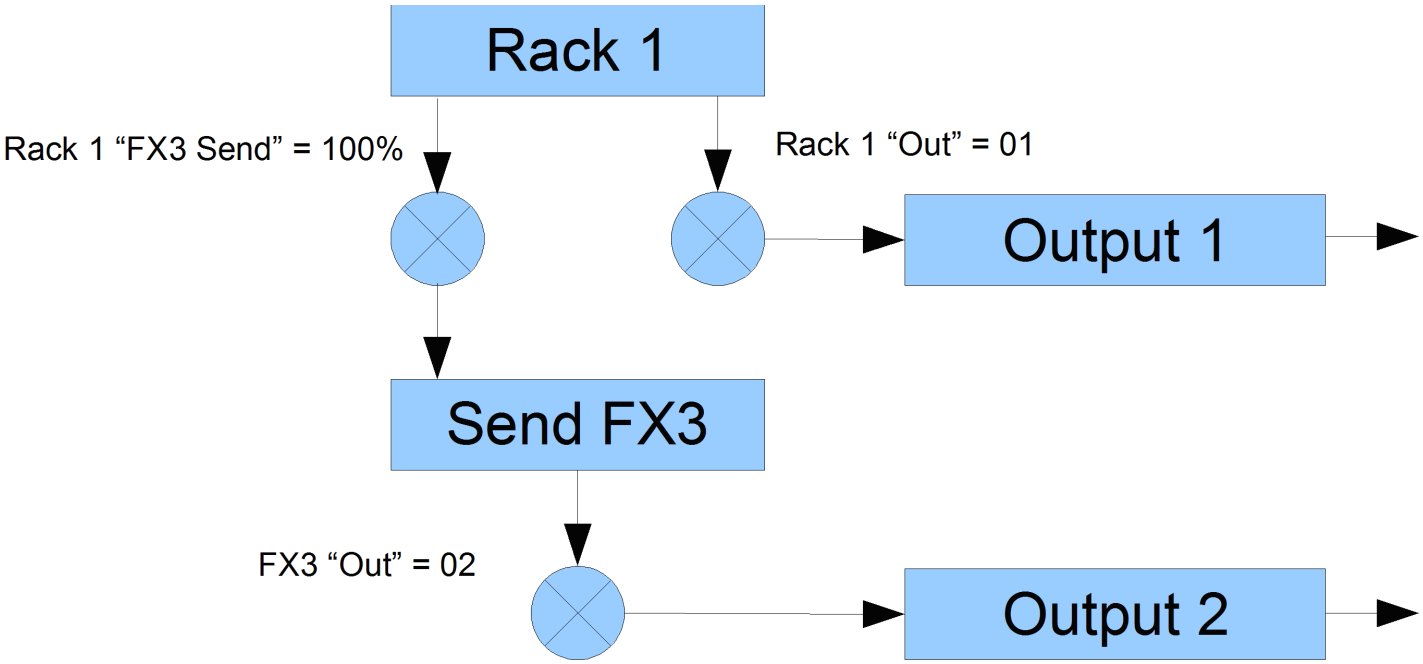
Each FX unit can be routed to any of outputs 1, 2, 3 or 4:



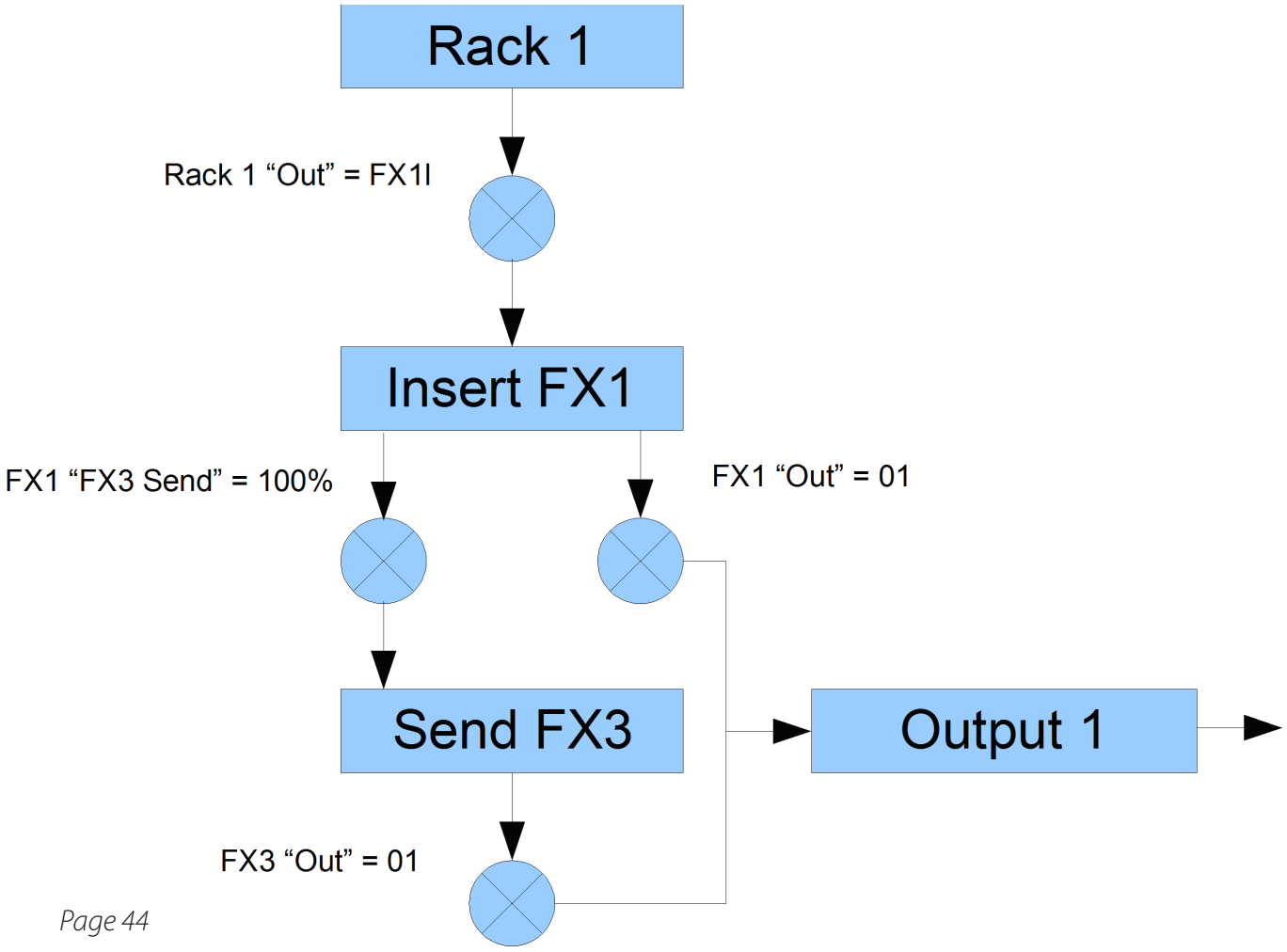
The following diagram shows a rack routed to insert FX1, with insert FX1 routed to output 2:



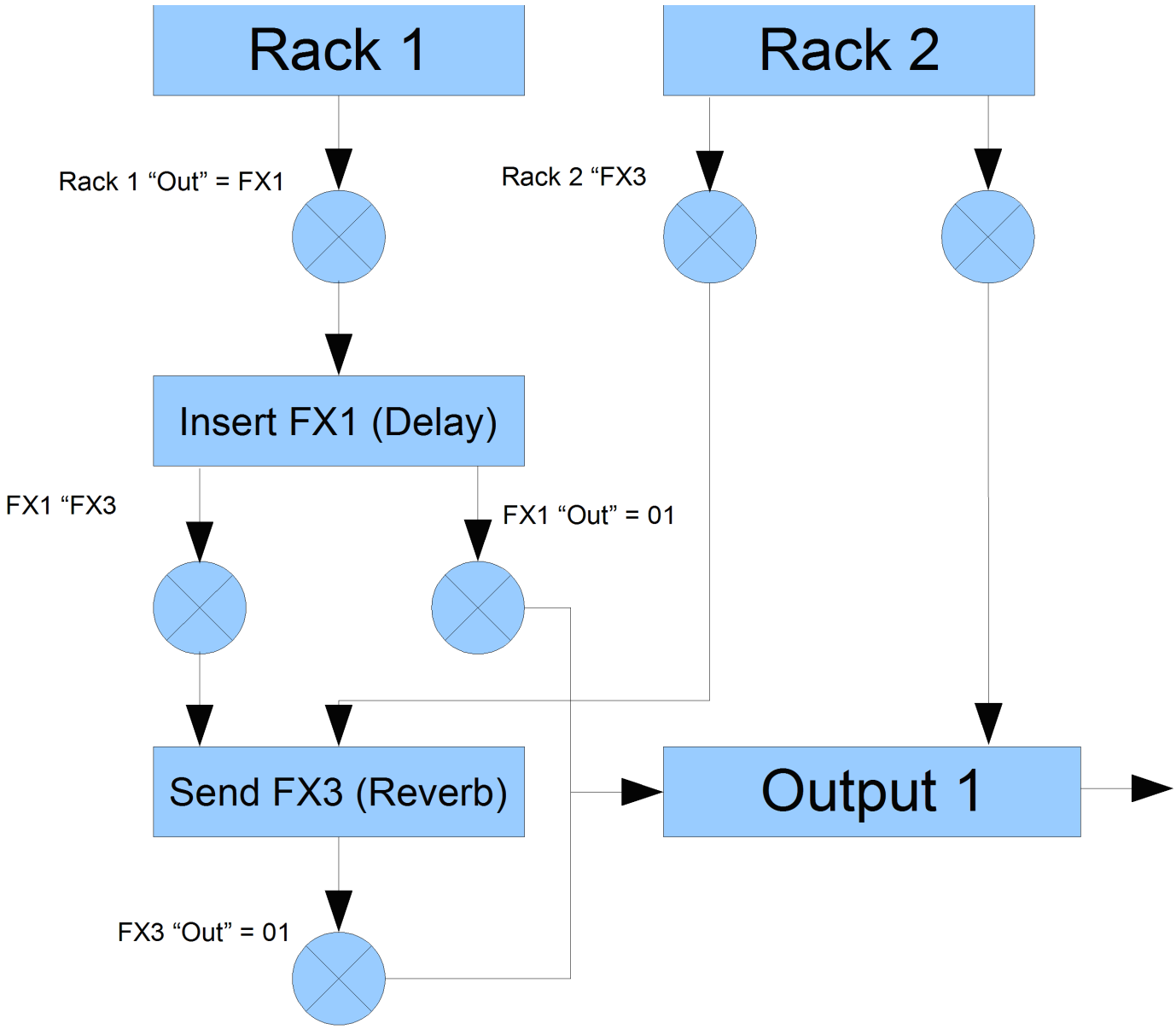
FX units 3 & 4 (FX3/4) are configured as send effects. To send a rack's output to FX3 or FX4 you use the FX send controls on each rack. The rack's output now goes to the output shown in its Out field and also to the FX unit. Once the sound has been processed by the FX unit, it will be sent to the output in the FX unit's Out field. This may be the same output as the original rack or can be a different one



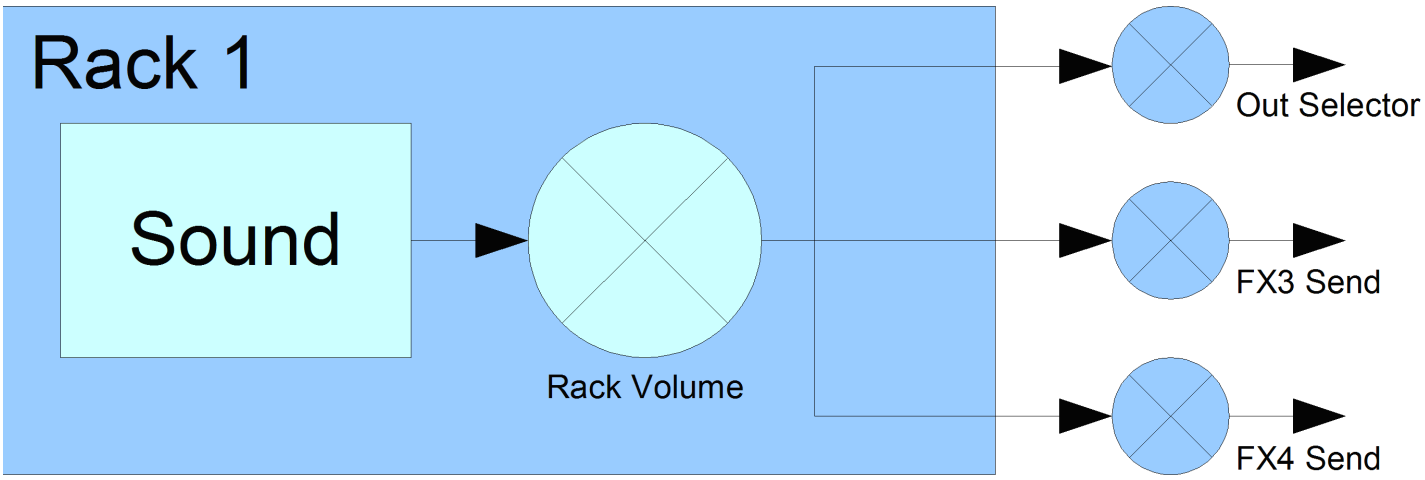
It is also possible to route the output from insert FX1 & FX2 to send FX3 & FX4 using the FX1/2 send FX controls on the FX page. This is shown in the diagram below with all FX routed to output 1.



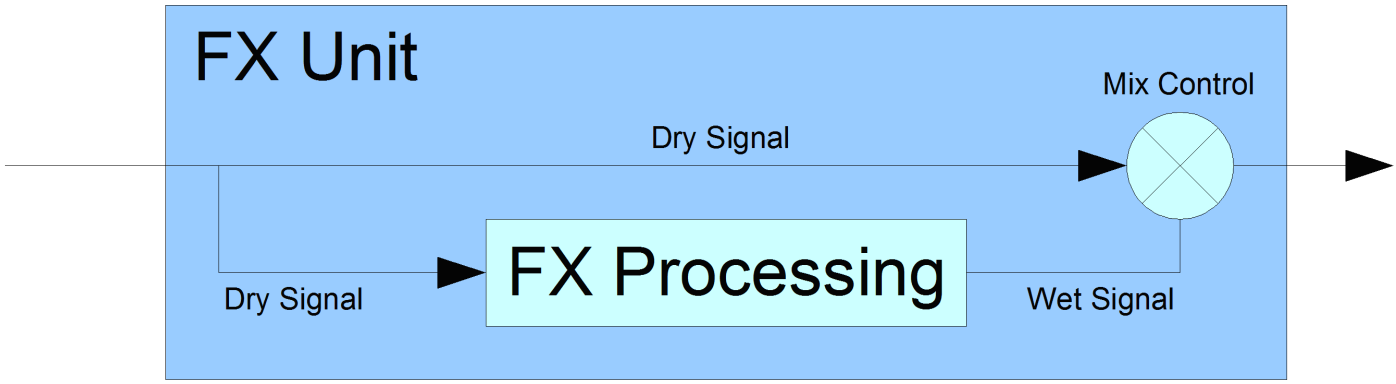
In this way, you can share the same reverb between two racks but have one rack processed by a delay effect too:



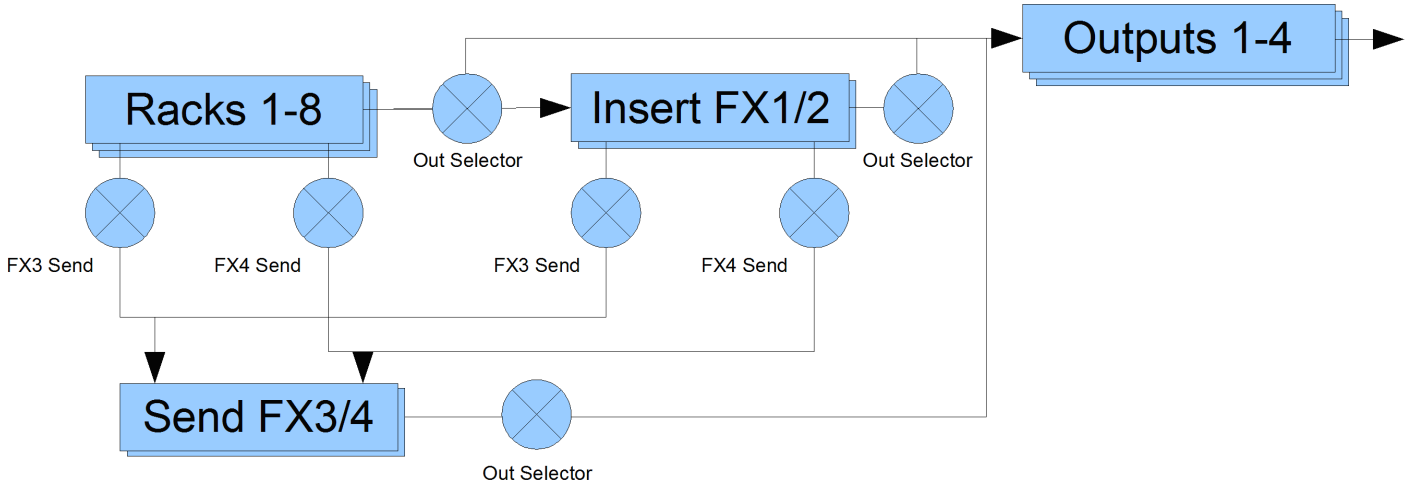
FX Send controls are post-fader, which means if you reduce the volume of a rack, the signal sent to the FX units will also be reduced, as illustrated below:



Each FX unit has a mix control as well. Rotated fully left (0:100) the FX unit will output the original unprocessed input (dry) signal, rotated fully right (100:0) the FX unit will output only the processed (wet) signal. At values in between, the FX unit will output a mixture of the dry and wet signals. This is illustrated below:



To summarise, the Beat Producer signal path can be represented by the following diagram:



Copyright & Credits

Tachyon Engine customisation:	**David Waugh for Muon Software Ltd**
Tachyon Engine coding:	**David Waugh, Steve Baker**
Graphics:	**Shaun Ellwood for Decoder Design**
Project Management:	**Matt Wilkinson for AMG**

Tachyon technology used under license from Muon Software Ltd.
REX technology by Propellerhead Software AB.

Apple Loops are a trademark of Apple, Inc.

VST is a trademark of Steinberg Media Technologies AG.

REX is a trademark of Propellerhead Software AB

ACID® and ACIDized® are trademarks or registered trademarks of Sony Pictures Digital Inc. or its affiliates in the United States and other countries.

All other trademarks remain the exclusive property of their respective holders.

All other Beat Producer content and intellectual copyrights - © AMG 2011. Made in Great Britain.